### **SUPPORT DOCUMENTS**

### List of Support Documents

- 1. Formula and Certificate of Analysis for Solid Purified Diet
- 2. Analytical Method of Vinyl Chloride Monomer and Formaldehyde
- 3. Certificates of Analysis for Test Substance (Methanol)
- 4. Records on Operating Conditions of Long-Term Inhalation Study Facility (Inside the Inhalation Laboratory)
  Daily Inspection Chart (Outside the Inhalation Laboratory)
- A Records of Temperature and Humidity Inside the Exposure Chamber (One Example)
- 6. Details of Animal Care and Management
- 7. Results of Antibody Test on Pathogenic Microorganisms

Received on 08/11/1983

August 11, 1983

Mitsubishi Kasei Institute of Toxicology and Environmental Sciences

Dr. Matsuura

Funabashi Farms, Co., Ltd. Tomo Watarai

For the purpose of the subject matter, reported below is formula of purified diet cp23 for F 344 rats.

### Record

Name of Raw Material	%	Remarks
Casein	26.7 %	New Zealand Dairy Board
Methionine	0.3	Takeda Science
Granulated sugar	10.0	Higashi Nihon Sugar Mfg.
Cornstarch	45.0	Kato Kagaku
Cellulose	7.0	Sanyo-Kokusaku Pulp
Refined soybean oil	5.0	Showa Sangyo
USP vitamins	1.0	Takeda Science
USP minerals	5.0	Takeda Science
	100.00	

 $See\ attachment\ for\ Results\ of\ analysis.$ 

### **USP Vitamins**

2000 IU

Vitamin A

Vitamin D 200 IU Vitamin E 10 IU Menadione 0.5 mg/ 100 g Choline 200 mg/ 100 g Aminobenzoic acid 10 mg/ 100 g Inositol 10 mg/ 100 g Niacin 4 mg/ 100 g Calcium pantothenate 4 mg/ 100 g Riboflavin 0.8 mg/ 100 g

Thiamine hydrochloride 0.5 mg/ 100 g Pyridoxine hydrochloride 0.5 mg/ 100 g

Folic acid 0.2 mg/ 100 g

Biotin 0.04 mg/ 100 g

Vitamin B12 0.003 mg/ 100 g

Base material: Cornstarch

Potassium phosphate

Base material:

### **USP** Minerals

389 g / 1 kg

Cornstarch

Anhydrous magnesium sulfate 57.3 g/ 1 kg Calcium carbonate 381.4 g/ 1 kg Ferric sulfate.7H<sub>2</sub>O 27.0 g / 1 kgManganese sulfate.H<sub>2</sub>O 4.01 g / 1 kgZinc sulfate.7H<sub>2</sub>O 0.548 g / 1 kgCopper sulfate.5H<sub>2</sub>O 0.477 g/1 kgCobalt chloride.6H<sub>2</sub>O 0.023 g / 1 kgSodium chloride 139.3 g/ 1 kg Potassium iodide 0.79 g / 1 kg

Issue No. 16071343-002

August 3, 1983

### **CERTIFICATE OF ANALYSIS**

Requester: Funabashi Farms, Co., Ltd.

Name of Specimen

or Sample:

Purified diet for rats

Notes: Manufactured on July 21, 1983

Lot No. 344

The following are the results of analysis on the abovementioned specimen submitted to our center on July 25, 1983.

Japan Food Research Laboratories 52-1 Motoyoyogi-cho, Shibuya-ku, Tokyo Branch: 3-1 Toyotsu-cho, Suita-shi, Osaka [seal: Seal of Japan Food Research Laboratories]

### **RESULTS OF ANALYSIS**

Subject of Analysis	Result	Detection Limit	Note	Analytical Method
Moisture content	7.2 %			Heated-air drying method under normal atmospheric pressure (2 hours at 135 °C)
Crude protein	23.8 %		1	Kjeldahl method
Crude fat	5.0 %			Soxhlet extraction
Crude fiber	4.6 %			Filtering
Crude ash	4.5 %			Direct ashing method

Note 1: 6.25 nitrogen-to-protein conversion factor was used.

End of report

### Support Document 2: Analytical Method of Vinyl Chloride Monomer and Formaldehyde

The method used in the food hygiene test was adopted to analyze vinyl chloride monomer in methanol. ("Handling of Containers and Packaging Made of Vinyl Chloride Resin," Environmental Health and Food Chemistry Bulletin No. 53, Notification from the Director of Environmental Health Bureau, Ministry of Health and Welfare, December 23, 1975).

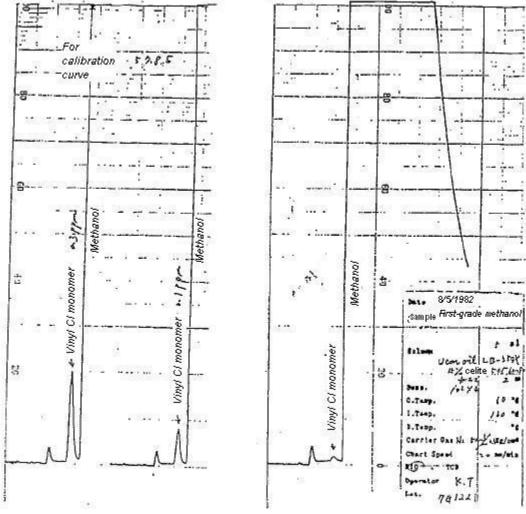
As for analysis of formaldehyde within methanol, a method to calculate formalin based on oxygen consumption of potassium permanganate was utilized since a proper detector that can identify formalin level of about 3 ppm does not exist.

A sample of analytical determination (standard substance for calibration curve as well as sample) of vinyl chloride monomer in methanol is shown below.

### **Standard Solution**

(Vinyl chloride monomer/ methanol)

# Sample (first-grade methanol)



### A. Analytical Method of Monomer in Food Packaging and Container Materials

Taro Okada

### 1. Vinyl chloride monomer

### (1) Analysis of VCl monomer in resin

Environmental Health and Food Chemistry Bulletin No. 53 December 23, 1975

Dear prefectural governors, mayors of ordinancedesignated cities, and directors of special wards,

> Director of Environmental Health Bureau, Ministry of Health and Welfare

### Handling of Containers and Packaging Made of Vinyl Chloride Resin (Notification)

The quality of vinyl chloride resin food containers and packaging (hereafter, "VCl containers and packaging") has been controlled by Standards for Heavy Metals and Other Substances (Notice No. 178, Ministry of Health and Welfare, June 1973). Recently, however, some studies revealed that vinyl chloride monomer (hereafter, "VCM") remains within resin and migrates into food if high level of residue is present. For this reason, traders concerned have been instructed to manufacture high quality VCl containers and packaging, and at the same time, National Institute of Health Sciences has been conducting research on migration and so forth of VCM into food.

Based on the studies conducted thus far, the residual limit of VCM within materials without a risk of VCM migration into food as well as appropriate test methods were obtained. Please use the following information to guide traders concerned for the time being.

In case you are not aware, manufacturers of VCl containers and packaging have been, since the end of last year, producing and distributing products having no risk of VCM migration into food. Furthermore,

as of October 15 of this year, they have set the limit of residual level of VCM as 1 ppm or less, as a voluntary standard. Materials for all the VCl containers and packaging for sale have been tested, and if any pre-existing VCl containers and packaging do not meet the voluntary standard, they are taking steps to recall the product(s).

#### **NOTE**

- 1. From now on, all VCl containers and packaging to be manufactured and sold as well as to be used by food manufacturers must pass the attached test.
- 2. In the immediate future, focus guidance on VCl containers and packaging to be used with the following food:

Soy sauce, sauce, vinegar, cooking oil, sweet rice wine for cooking and margarine

#### Test Method for VCl Containers and Packaging

### a. Preparation of Test Solution

Shred sample to less than 5 mm width, precisely measure about 1 g of the shredded sample, and place it in a 20 ml volumetric flask. Add appropriate amount of tetrahydrofuran to the flask, leave it in a cool location and shake occasionally. After the sample has resolved, add tetrahydrofuran to obtain exactly 20 ml of test solution.

Add either ferrous sulfate or lithium aluminum hydrate to tetrahydrofuran for distillation, and make sure no substance that may interfere with the test is present.

#### b. Test

#### ☐ Qualitative Test

Take 10  $\mu$ l each of test solution and vinyl chloride standard solution, and perform gas chromatography in operating conditions below. Then, compare detection times of the peak in gas chromatogram of the test solution and the peak of vinyl chloride in gas chromatogram of the vinyl chloride standard solution.

#### **OPERATING CONDITION 1**

Column carrier: Use kieselguhr (standard wire

sieve 149-177  $\mu$ ) for gas

chromatography.

Column filler: Add Ucon oil LB-550 X in the

amount equivalent to 15-20 %

of the column carrier.

Column: Use 3-4 mm diameter, 2,000-3,000

mm long stainless tube or glass tube.

Column temperature: 60-70 °C

Test solution inlet temperature: 150 °C

Detector: Use a hydrogen flame ionization detector. Operate at around 200 °C.

Adjust the level of hydrogen and air so that the detection sensitivity is at

maximum.

Carrier gas: Use nitrogen gas. Adjust the flow rate so that a steady stream of vinyl chloride would appear in about 90

seconds.

#### **OPERATING CONDITION 2**

Column filler: Use Chromasolv 104 (standard wire sieve 149-177 u).

whe sieve  $1+j-177 \mu$ ).

Column: Use 3-4 mm diameter, 1,500 mm long

stainless tube or glass tube.

Column temperature: 120 °C

Test solution inlet temperature: 150 °C

Detector: Use a hydrogen flame ionization

detector. Operate at around 150 °C. Adjust the level of hydrogen and air so that the detection sensitivity is at maximum.

Carrier gas: Use nitrogen gas. Adjust the flow rate so that vinyl chloride would flow out in about 3-4 minutes.

#### Quantitative Test

- If the detection times of the peak in gas chromatogram of the test solution and the peak of vinyl chloride in gas chromatogram of the vinyl chloride standard solution match in the qualitative test, perform the following tests
- 2) When measuring the peak area of vinyl chloride in test solution based on the results of test performed under the operating condition 1 or 2, whichever is appropriate, the area cannot be greater than the peak area of vinyl chloride standard solution.

Vinyl chloride standard solution 1:
Assemble 1-liter standard vacuum bottle for gas collection as shown in the figure. Switch the three-way stopcock to the vacuum pump and vacuumize inside the collection bottle. When the mercury manometer becomes stationary to indicate completion of vaccumization inside the bottle, switch the three-way stopcock to the vinyl chloride cylinder and gradually send vinyl chloride into the bottle. When the mercury manometer returns to 1 atmosphere, stop the valve on the cylinder and switch the three-way stopcock to re-vacuumize the bottle.

Repeat this process three times, and at the end of last cycle, stop the cylinder when the mercury manometer indicates slightly higher pressure than 1 atmosphere. Tighten the fluororesin valve and remove the threeway stopcock and stainless needle to complete collection of vinyl chloride.

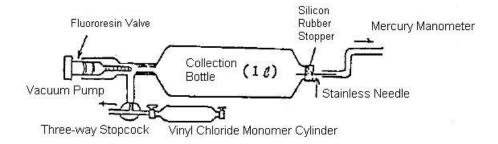


Fig. 1

Separately, pour 20 ml of ethyl alcohol in a 200 ml test tube equipped with a serum cap or silicon rubber, and cool it with methyl alcohol and dry ice in advance.

Next, using a 50 µl micro syringe, collect 8 µl of vinyl chloride through silicon rubber stopper of the collection bottle in the figure. Gradually inject the vinyl chloride in 20 ml of pre-cooled ethyl alcohol, dissolve it and shake the tube well to obtain even solution. Then, take 1 ml of the solution and add cooled ethyl alcohol to obtain exactly 20 ml of solution.

Ethyl alcohol: Add ferrous sulfate for distillation and make sure no substance that may interfere with the test is present.

1-liter standard vacuum bottle for gas collection: One that is described in "Test Methods for Malodorous Substances," Environmental Agency Notification No. 9, May 30, 1972.

#### c. Additional Remarks

Aluminum lithium hydrate: Japanese Industrial Standards Special Grade Chemicals

All other reagents without special mention follow Standards for Food and Additives (Notification No. 370, Ministry of Health and Welfare, 1959).

### (2) Analysis of VCM in Foods (Japan Hygienic PVC Association)

Either dissolve or suspend food in proper solvent (ethanol or acetone. For margarine, THF is suitable), and while heating in hot-water bath, either expel VCM by nitrogen gas (nitrogen expulsion method) or distil it (distillation method). Collect VCM in trap tube filled with ethanol precooled in refrigerant. Measure this ethanol solution with gas chromatograph equipped with a hydrogen flame ionization detector.

The detection limit of VCM using this pretreatment method is 0.05 ppm (W/W).

Details of nitrogen expulsion method and distillation method are as follows:

### 1) Nitrogen Expulsion Method

Set the temperature of water bath to 60-80 °C. Then, take 10 ml of ethanol with a ball pipette and put it in the VCM trap tube. Set it by soaking in a dry ice/ ethanol bath

Put 20 ml of solvent in an impinger, weigh out 10 g of sample and mix it with the solvent. Then, quickly load the impinger to the system, adjust the nitrogen gas flow rate to 60 ml/ min. and soak in the hot-water bath.

After running nitrogen gas for 30-60 minutes, remove the VCM trap tube from the system, and put the silicon rubber stopper. Store it while soaking in the dry ice/ ethanol bath and submit it to gas chromatography.

If the sample is solid, not completely dissolved... [page missing]

## **Support Document 3: Certificates of Analysis for Test Substance (Methanol)**

### COPY

Governmental	l	Certificate	e of A	nalysis			No	. 070	)41	
Commission		<u> </u>								
Methanol										
	TO:				August	10, 19	982			
Delivery No. 2	2 (lot delivered	on 8/9)		Testers	[seal: Uyama	1]		[seal: Toku		
Specimen:	Meth	anol	Test (	Grade:	Pure C	re Grade 1 grad				
	(Methyl									
Test Date:	August 4,	1982	Clima	ite:	Weathe	r:	Ten	np:	°C	
Date of Mfg.:			Quant	ity:		14 kg	g x 1	.0		
Lot No.:	7H1	102	Rema	rks:						
Items			Stand	lards	Ass	ay V	'alue			
Solubility in	n water		То ра	ass tes	t	Pas	s			
Water			Max.	0.3 %		0.0	<del>17</del> %	6		
Non-volatile	e matter		Max.	0.003	%	trac	ce			
Acid (as HC	Acid (as HCOOH)				%	0.00027 %				
Alkali (as N	H <sub>3</sub> )		Max. 0.0005 %			trac	ce			
Acetone, ald	dehyde (as		Max.	0.005	%	0.0	01%	)		
CH <sub>3</sub> COH <sub>3</sub> )										
Ethyl alcoh	ol		То ра	ass tes	t	pass				
Substances	reducing		Max. 0.0015 %			pas	s			
permangan	ate									
Substances	darkened b	y H <sub>2</sub> SO <sub>4</sub>	To pass test			pass				
Boiling rang	ge (64-66°C	)	Min.	95 v/v	7 %	pas	s			
ASSAY (by s	specific grav	ity)	Min.	99.6 v	/v %	99.	9 %			
Specific gra	vity (20/20	°C)	Max.	0.794		0.79	930			
* Vinyl chlo			Max.	1 ppn	1	Abo	ut (	0.01	5	
			ppm							
* Formaldel	nyde		Max.	3 ppn	ı	Abo	ut 2	2.5		
							n or			
			[5	seal: Seal	of Junsei			Co., L	td.	
				1.601	Saitama		-	1-:4		
DECISION	PASSED	7H1102			nocho, Kos ng Division				а,	
	LABBED	/111102								
		Junsei Chemical Co., Ltd. TEL: Koshigaya (62) 6161								

Governmental Commission	Certificat	te o	of Ar	nalysis		'akeda.		. 072′ 82, (Kaz	
Methanol	TO:	TO: September 29, 1982							
Delivery No. 3(9				Testers	[seal: Uyama		1702	[seal: Tokun	10]
Specimen:	Methanol (Methyl Alcohol)	Te	est G	rade:	Pure C	Grade 1 grade			
Test Date:	Sept. 20, 1982	Cl	limat	e:	Weathe	r:	Ten	np:	°C
Date of Mfg.:	•	Qı	uanti	ty:		14 kg	g x 1	.0	
Lot No.:	7I1396	Re	emar	ks:					
Items		St	tanda	ards		Ass	say V	alue	
Solubility in v	vater	To	o pa	ss tes	t	Pas	SS		
Water		M	ax.	0.3 %		0.0	18 %	6	
Non-volatile n	natter	M	ax.	0.003	%	trace			
Acid (as HCO	OH)	Max. 0.004 %				0.00025 %			
Alkali (as NH3	B)	Max. 0.0005 %			5 %	tra	ce		
Acetone, alde CH <sub>3</sub> COH <sub>3</sub> )	hyde (as	Max. 0.005 %				0.0	01%	)	
Ethyl alcohol		To	o pa	ss tes	t	pass			
Substances repermanganate	_	Max. 0.0015 %				pas	SS		
	arkened by H <sub>2</sub> SO <sub>4</sub>	To	To pass test			pass			
Boiling range	(64-66 °C)		_	95 v/v					
ASSAY (by sp	ecific gravity)			99.6 v		99.	9 %		
Specific gravi	ty (20/ 20 °C)	M	ax.	0.794		0.7	930		
* Vinyl chlorid	de	M	lax.	1 ppn	1	Abo	out (	0.015	
						ppı			
* Formaldehy	de	Max. 3 ppm About 2.5				2.5			
		ppm or less							
DECISION 7	<b>PASSED</b> 711396 11396	[seal: Seal of Junsei Chemical Consultant Plant] 1-6 Ohmanocho, Koshigaya-shi, San Testing Division, Saitama Plant Junsei Chemical Co., Ltd. TEL: Koshigaya (62) 6161				Saitama, ant, td.			

Governmental Commission	Certifica	te of A	nalysis			No. 07587		
Methanol	-							
	TO:			Novemb	er 4,	1982		
Delivery No.4			Testers	[seal:	_	[seal:		
	[seal: Takeda, 11/5/82,			Uyama		Tokuno]		
Specimen:	Methanol (Methyl Alcohol)	Test (	Grade:	Pure C	<del>i</del> rad	<u>e 1</u> grade		
Test Date:	October 30, 1982	Clima	ite:	Weathe	r:	Temp: °C		
Date of Mfg.:	000000130, 1302	Quant				g x 20		
Lot No.:	7K1076	Rema	-			511 20		
				<u>I</u>				
Items		Stand	lards		Ass	say Value		
Solubility in	water	То ра	ass tes	t	Pas	SS		
Water		Max.	0.3 %	ı	0.0	14 %		
Non-volatile	matter	Max.	0.003	%	tra	ce		
Acid (as HCC	OOH)	Max.	0.004	%	0.0	00067 %		
Alkali (as NH	[3)	Max.	0.000	5 %	tra	ce		
Acetone, alde	ehyde (as	Max.	0.005	%	0.0	001%		
CH <sub>3</sub> COH <sub>3</sub> )								
Ethyl alcoho	1	To pa	ass tes	t	pas	ss		
Substances	reducing	Max.	0.001	5 %	pas	ss		
permangana								
	darkened by H <sub>2</sub> SO <sub>4</sub>	To pa	ass tes	t	pas	ss		
Boiling range	e (64-66 °C)		95 v/v		pas			
	pecific gravity)		99.6 v			.9 %		
	ity (20/20°C)		0.794		0.7930			
* Vinyl chlor:	ide	Max. 1 ppm About 0.015						
		ppm						
* Formaldeh	yde	Max.	3 ppn	1	_	out 2.5		
						m <i>or less</i>		
			seal: Seal			nical Co., Ltd.		
DECISION			1-6 Ohma	Saitama nocho, Kos		a-shi, Saitama,		
DECISION	PASSED			ng Divisior				
	<u> </u>	Junsei Chemical Co., Ltd.						
			TI	EL: Koshiga	aya (62	2) 6161		

Governmental Commission Methanol		te of A	Certificate of Analysis  Seal: Takeda, 1/18/83 (Kazu)							
	TO:				nuary	18, 1	983			
Delivery No. 5			Testers		[seal: Uyama	]		[seal: Toku		
Specimen:	Methanol (Methyl Alcohol)	Test (	Grade:	<u>P</u>	ure G	rad	<u>e 1</u>	gr	ade	
Test Date:	January 18, 1983	Clima	ate:	W	/eather	::	Ten	np:	°C	
Date of Mfg.:		Quan	tity:		1	4 k	g x 1	0		
Lot No.:	8A1252	Rema	ırks:							
Items		Stand	dards			Ass	say V	alue		
Solubility in	water	Тор	ass tes	t		Pas	ss			
Water		Max	. 0.3 %	)		0.0	15 %	6		
Non-volatile	matter	Max	. 0.003	%	1	tra	ce			
Acid (as HCC	OH)	Max. 0.004 % 0.0008 %				%				
Alkali (as NH	3)	Max. 0.0005 % trace								
Acetone, alde CH <sub>3</sub> COH <sub>3</sub> )	ehyde (as	Max	Max. 0.005 %			0.0	01%	)		
Ethyl alcohol		Тор	ass tes	t		pass				
Substances r	O .	Max	0.001	5 9	%	pas	SS			
Substances of	larkened by H <sub>2</sub> SO <sub>4</sub>	Тор	ass tes	t		pas	ss			
Boiling range	(64-66 °C)	Min.	95 v/v	v %	, 0	pas	SS			
ASSAY (by sp	ecific gravity)	Min.	99.6 v	/v	%	99.	9 %			
Specific gravi	ity (20/20 °C)	Max	. 0.794			0.7	930			
* Vinyl chlori	de	Max. 1 ppm About 0.13						0.13		
		ppm								
* Formaldehy	<i>r</i> de	Max	. 3 ppn	n			out 2			
							n or			
DECISION	PASSED	[seal: Seal of Junsei Chemical Co. Saitama Plant] 1-6 Ohmanocho, Koshigaya-shi, Sait Testing Division, Saitama Plant, Junsei Chemical Co., Ltd. TEL: Koshigaya (62) 6161				Saitama ant, td.				

Governmental Commission	Seal: Takeda, 2/22/83, (Kazı		nalysis			No	. 02399	)	
Methanol	TO:	.,,,		February	22,	1983			
Delivery No.6	,		Testers	[seal: Uyama			[seal: Tokuno]		
Specimen:	Methanol (Methyl Alcohol)	Test Grade: Pure C			Grade 1 gra			—	
Test Date:	February 21, 1983	Clima	ite:	Weathe	r:	Teı	np: °C	7)	
Date of Mfg.:		Quan	tity:	14	kg z	X			
Lot No.:	8B1187	Rema	ırks:						
Items		Stand	Ass	say V	/alue				
Solubility in	water	To pa	ass tes	t	Pas	ss			
Water		Max	. 0.3 %	ı	0.0	08 9	%		
Non-volatile	matter	Max	0.003	%	tra	ce			
Acid (as HC		Max	Max. 0.004 %				0.0004 %		
Alkali (as N	$H_3$ )	Max	Max. 0.0005 %			trace			
Acetone, ald	lehyde (as	Max. 0.005 %			0.0	01%	0		
CH <sub>3</sub> COH <sub>3</sub> )									
Ethyl alcoho	ol	To p	ass tes	t	pass				
Substances	reducing	Max	0.001	5 %	pas	SS			
permangana									
	darkened by H <sub>2</sub> SO <sub>4</sub>	To p	ass tes	t	pas	ss			
Boiling rang	ge (64-66°C)	Min.	95 v/v	<i>I</i> %	pas				
	pecific gravity)		99.6 v		99.	9 %	1		
	vity (20/20°C)	Max	. 0.794			930			
* Vinyl chlor	ride	Max. 1 ppm About 0					0.022		
		ppm							
* Formaldel	ıyde	Max. 3 ppm About 2.5							
						n or			
		[	seal: Sea	l of Junsei			Co., Ltd.		
DE GYGYOU'			1-6 Ohma	Saitama nocho, Kos			Saitama		
DECISION	PASSED			ng Divisior					
		Junsei Chemical Co., Ltd.							
				EL: Koshiga					

Governmental	Certifica	te of A	nalysis			No	. 08709	
Commission	TO: Mr. Takeda,							
Methanol	Safety Institute			May 1	1, 19	83		
Delivery No. 7	[seal: Masaki, 5/13/83, (Kaz	u)]	Testers	[seal: Uyama	a]		[seal: Tokuno]	
Specimen:	Methanol	Test	Grade:	Pure C	<del>3</del> rad	<u>e 1</u>	grade	
	(Methyl Alcohol)							
Test Date:	April 14, 1983	Clim		Weathe		Ten		
Date of Mfg.:		Quan			14 k	g x 1	10	
Lot No.:	8B1357	Rema	arks:					
Items		Standards Assay Va					<sup>7</sup> alue	
Solubility in	water	То р	ass tes	t	Pas			
Water		Max	. 0.3 %		0.0	12 %	6	
Non-volatile	matter	Max	. 0.003	%	tra	ce		
Acid (as HC	OOH)	Max	. 0.004	%	0.0	0003	%	
Alkali (as NI	H <sub>3</sub> )	Max. 0.0005 % trace				ce		
Acetone, ald	ehyde (as	Max. 0.005 %			0.0	01%	)	
CH <sub>3</sub> COH <sub>3</sub> )								
Ethyl alcoho	1	То р	ass tes	t	pass			
Substances	reducing	Max	. 0.001	5 %	pas	ss		
permangana	ite							
Substances	darkened by H <sub>2</sub> SO <sub>4</sub>	То р	ass tes	t	pas	ss		
Boiling rang	e (64-66 °C)	Min.	95 v/v	<i>1</i> %	pas	SS		
ASSAY (by s	pecific gravity)		99.6 v		99.	9 %		
Specific grav	rity (20/ 20 °C)	Max	. 0.794		0.7	930		
			seal: Sea	l of Junsei Saitama			Co., Ltd.	
DECISION	DACCED		1-6 Ohma	nocho, Kos			Saitama,	
DECISION	PASSED			ng Divisior				
				sei Chem		,		
		TEL: Koshigaya (62) 6161						

Governmental Commission	Certifica	te of A	analysis	<u> </u>		No. 03026	
Methanol	TO:			June 6	5, 1983		
Delivery No.8	10.		Testers	[seal: Uyama		[seal: Tokuno]	
Specimen:	Methanol	Test (	Grade:	Pure C	_		
Test Date:	(Methyl Alcohol) June 2, 1983	Clima	oto:	Weathe	r· ′	Гетр: °C	
Date of Mfg.:	June 2, 1900	Quan			14 kg	remp.	
Lot No.:	8F1084	Rema			1 1 115	X 10	
Items		Stand	dards	L	Assa	y Value	
Solubility in	water	То р	ass tes	t	Pass		
Water			. 0.3 %		0.01	2 %	
Non-volatile	matter	Max	. 0.003	%	trace	9	
Acid (as HCC	OOH)	Max	. 0.004	. %	0.0003 %		
Alkali (as NE	[ <sub>3</sub> )	Max	. 0.000	5 %	trace		
Acetone, ald	ehyde (as	Max	. 0.005	%	0.00	1%	
CH <sub>3</sub> COH <sub>3</sub> )							
Ethyl alcoho			ass tes		pass		
Substances	reducing	Max	. 0.001	5 %	pass		
permangana							
	darkened by H <sub>2</sub> SO <sub>4</sub>		ass tes		pass		
Boiling range			95 v/v		pass		
	pecific gravity)		99.6 v		99.9		
	ity (20/20°C)		. 0.794		0.79		
* Vinyl chlor	ide	Max. 1 ppm About 0.0					
		ppm					
* Formaldeh	yde	Max	. 3 ppn	n		ıt 2.5	
		<u> </u>				or less	
		[	seal: Sea	l of Junsei Saitama		cal Co., Ltd.	
DECIGION			1-6 Ohma			hi. Saitama.	
DECISION	PASSED		1-6 Ohmanocho, Koshigaya-shi, Saitama, Testing Division, Saitama Plant,				
	<u></u>	Junsei Chemical Co., Ltd.					
			TI	EL: Koshiga	aya (62) (	6161	

# COPY

\* Formaldehyde

COPY									
Governmental	ME	Certifica	Certificate of Analysis No. 0316						
Commission		TO: Mitsubish	i Kasei	-					
Methanol	58	Institute of Tox	xicology	and		July 5	5, 198	33	
		Environmental	Scienc	es,					
		Ltd.							
Delivery No. 9				Testers	[seal: Uyama				l: uno]
Specimen:		Methanol thyl Alcohol)	Test Grade: Pure C			<del>i</del> rad	<u>e 1</u>	g	rade
Test Date:		28, 1983	Clima	ite:	Weathe	r:	Ter	np:	°C
Date of Mfg.:			Quant	ity:		14 k	g x l	10	
Lot No.:		8F1687							
Items			Stand	lards		Assay			e
Solubility in v	vater		То ра	ass tes	t	Pas	ss		
Water			Max. 0.3 %			0.0	15 %	%	
Non-volatile r	natter		Max. 0.003 %			trace			
Acid (as HCO	OH)		Max.	0.004	0.0003 %			%	
Alkali (as NH	3)		Max.	0.000	05 % trace				
Acetone, alde	hyde (	as	Max.	0.005	%	0.0	01%	, o	
CH <sub>3</sub> COH <sub>3</sub> )									
Ethyl alcohol			То ра	ass tes	t	pas	ss		
Substances r	educir	ng	Max.	0.001	5 %	pas	ss		
	ermanganate								
Substances d		J .	To pass test			pas	SS		
Boiling range				95 v/v		pas			
ASSAY (by specific gravity)			Min. 99.6 v/v %						
	pecific gravity (20/20°C)						930		
* Vinyl chlori	de		Max.	1 ppn	1	About 0.02			

DECISION

PASSED

[seal: Seal of Junsei Chemical Co., Ltd. Saitama Plant]

1-6 Ohmanocho, Koshigaya-shi, Saitama, Testing Division, Saitama Plant,

Junsei Chemical Co., Ltd.

TEL: Koshigaya (62) 6161

Max. 3 ppm

ppm

About 2.5 ppm *or less* 

Methanol         58         TO:         July 20, 1983           Delivery No. 10         Testers         [seal: Uyama]         [seal: Tokuno]           Specimen:         Methanol (Methyl Alcohol)         Test Grade:         Pure Grade 1         grade           Test Date:         July 17, 1983         Climate:         Weather:         Temp: °C           Date of Mfg:         Quantity:         14 kg x 10           Lot No.:         8G1348         Remarks:           Items         Standards         Assay Value           Solubility in water         To pass test         Pass           Water         Max. 0.3 %         0.012 %           Non-volatile matter         Max. 0.003 %         trace           Acid (as HCOOH)         Max. 0.004 %         0.0005 %           Alkali (as NH₃)         Max. 0.005 %         trace           Acetone, aldehyde (as         Max. 0.005 %         0.001%           CH₃COH₃)         To pass test         pass           Substances reducing permanganate         Max. 0.0015 %         pass           Boiling range (64-66 °C)         Min. 95 v/v %         pass           Boiling range (64-66 °C)         Max. 0.001 %         0.7930           * Vinyl chloride <t< th=""><th>Governmental Commission</th><th>ME</th><th>Certifica</th><th>te of A</th><th>nalysis</th><th></th><th></th><th>No</th><th>0. 03244</th></t<>	Governmental Commission	ME	Certifica	te of A	nalysis			No	0. 03244		
Testery No. 10   Testers   [seal: Uyama]   [seal: Tokuno]		58	TO:			1	uly 20	n 19	183		
Specimen:   Methanol (Methyl Alcohol)   Test Grade:   Pure Grade 1   grade			10.		Testers		ury 20	0, 1)			
Methyl Alcohol)							•		Tokuno]		
Test Date:   July 17, 1983   Climate:   Weather:   Temp: °C	Specimen:	-		Test C	Grade:	Pure (	re Grade 1 grade				
Date of Mfg.:   Quantity:   14 kg x 10	T D .			CI.		XX7 .1		T.	00		
Items		July 1	7, 1983						mp. С		
Items  Standards  Assay Value  Solubility in water  To pass test  Pass  Water  Max. 0.3 %  0.012 %  Non-volatile matter  Max. 0.003 %  trace  Acid (as HCOOH)  Max. 0.004 %  0.0005 %  Alkali (as NH <sub>3</sub> )  Max. 0.005 %  Trace  Acetone, aldehyde (as  CH <sub>3</sub> COH <sub>3</sub> )  Ethyl alcohol  To pass test  Substances reducing  permanganate  Substances darkened by H <sub>2</sub> SO <sub>4</sub> Boiling range (64-66 °C)  ASSAY (by specific gravity)  Specific gravity (20/ 20 °C)  * Vinyl chloride  Max. 0.794  Max. 0.794  DECISION  PASSED  Standards  Pass  Pass  Pass  Pass  Assay Value  Pass  Pass  Pass  Pass  No.012 %  Nax. 0.0005 %  Trace  Nax. 0.0015 %  Pass  Pass  Pass  Max. 0.0015 %  Pass  Pass  Pass  Max. 0.0015 %  Pass  Specific gravity (20/ 20 °C)  Max. 0.794 (0.7930)  About 0.02  About 0.02  About 2.5  A			001240	_ `			14 K	g x .	10		
Solubility in water  Water  Max. 0.3 %  Non-volatile matter  Acid (as HCOOH)  Alkali (as NH <sub>3</sub> )  Acetone, aldehyde (as  CH <sub>3</sub> COH <sub>3</sub> )  Ethyl alcohol  Substances reducing  permanganate  Substances darkened by H <sub>2</sub> SO <sub>4</sub> Boiling range (64-66 °C)  ASSAY (by specific gravity)  Specific gravity (20/ 20 °C)  * Vinyl chloride  PASSED  To pass test  pass  Max. 0.0015 %  DECISION  PASSED  To pass test  pass	Lot No.:		8G1348	Rema	rks:		1				
Max. 0.3 % 0.012 %  Non-volatile matter Max. 0.003 % trace  Acid (as HCOOH) Max. 0.004 % 0.0005 %  Alkali (as NH <sub>3</sub> ) Max. 0.0005 % trace  Acetone, aldehyde (as Max. 0.005 % 0.001%  CH <sub>3</sub> COH <sub>3</sub> )  Ethyl alcohol To pass test pass  Substances reducing Max. 0.0015 % pass  permanganate  Substances darkened by H <sub>2</sub> SO <sub>4</sub> To pass test pass  Boiling range (64-66 °C) Min. 95 v/v % pass  ASSAY (by specific gravity) Min. 99.6 v/v % 99.9 %  Specific gravity (20/ 20 °C) Max. 0.794 0.7930  * Vinyl chloride Max. 1 ppm About 0.02 ppm  * Formaldehyde Max. 3 ppm About 2.5 ppm or less  DECISION PASSED  [seal: Seal of Junsei Chemical Co., Ltd. Saitama Plant, Junsei Chemical Co., Ltd. Testing Division,	Items			Stanc	lards		Ass	ay V	<i>l</i> alue		
Non-volatile matter  Acid (as HCOOH)  Alkali (as NH <sub>3</sub> )  Acetone, aldehyde (as  CH <sub>3</sub> COH <sub>3</sub> )  Ethyl alcohol  Substances reducing permanganate  Substances darkened by H <sub>2</sub> SO <sub>4</sub> ASSAY (by specific gravity)  Specific gravity (20/20 °C)  * Vinyl chloride  * Formaldehyde  DECISION  PASSED  Max. 0.003 %  trace  0.0005 %  Ax. 0.0015 %  Dass  Ax. 0.0015 %  Dass  Da	Solubility in	n water		То ра	ass tes	t	Pas	ss			
Acid (as HCOOH)  Alkali (as NH <sub>3</sub> )  Acetone, aldehyde (as CH <sub>3</sub> COH <sub>3</sub> )  Ethyl alcohol  Substances reducing permanganate  Substances darkened by H <sub>2</sub> SO <sub>4</sub> Boiling range (64-66 °C)  ASSAY (by specific gravity)  Specific gravity (20/ 20 °C)  * Vinyl chloride  To pass test pass  Max. 0.0015 %  Max. 0.0015 %  PASSED  Max. 0.0015 %  Pass  Pass  Pass  Pass  Pass  Iseal: Seal of Junsei Chemical Co., Ltd. Saitama Plant, Junsei Chemical Co., Ltd. TEL: Koshigaya (62) 6161				Max.	0.3 %	0.0	12 9	%			
Alkali (as NH <sub>3</sub> )  Acetone, aldehyde (as CH <sub>3</sub> COH <sub>3</sub> )  Ethyl alcohol  Substances reducing permanganate  Substances darkened by H <sub>2</sub> SO <sub>4</sub> Boiling range (64-66 °C)  ASSAY (by specific gravity)  Specific gravity (20 / 20 °C)  * Vinyl chloride  * Formaldehyde  PASSED  Max. 0.0015 %  DECISION  Max. 0.0015 %  Pass  Pass  Max. 0.0015 %  pass  pass  pass  Pass  Pass  Min. 95 v/v %  pass  Min. 99.6 v/v %  99.9 %  About 0.7930  About 0.02 ppm  About 2.5 ppm or less  [seal: Seal of Junsei Chemical Co., Ltd. Saitama Plant]  1-6 Ohmanocho, Koshigaya-shi, Saitama, Testing Division, Saitama Plant, Junsei Chemical Co., Ltd. TEL: Koshigaya (62) 6161	Non-volatile	matter		Max.	0.003	trac	ce				
Acetone, aldehyde (as CH <sub>3</sub> COH <sub>3</sub> )  Ethyl alcohol To pass test Substances reducing permanganate  Substances darkened by H <sub>2</sub> SO <sub>4</sub> Boiling range (64-66 °C) ASSAY (by specific gravity) Min. 95 v/v % Specific gravity (20/ 20 °C)  * Vinyl chloride  * Formaldehyde  PASSED  Max. 0.0015 % pass pass pass Pass Pass Pass Min. 95 v/v % Pass Min. 99.6 v/v % Pass About 0.7930  * About 0.02 ppm About 2.5 ppm or less  [seal: Seal of Junsei Chemical Co., Ltd. Saitama Plant] 1-6 Ohmanocho, Koshigaya-shi, Saitama, Testing Division, Saitama Plant, Junsei Chemical Co., Ltd. TEL: Koshigaya (62) 6161	Acid (as HC	OOH)		Max.	0.004	%	0.0	005	%		
Ethyl alcohol  Ethyl alcohol  To pass test  Substances reducing permanganate  Substances darkened by H <sub>2</sub> SO <sub>4</sub> Boiling range (64-66 °C)  ASSAY (by specific gravity)  Specific gravity (20/ 20 °C)  * Vinyl chloride  * Formaldehyde  PASSED  PASSED  To pass test pass pass  Pass  Pass  Min. 95 v/v %  99.9 %  Max. 0.794  0.7930  * About 0.02 ppm  About 0.02 ppm  * Formaldehyde  About 2.5 ppm or less  [seal: Seal of Junsei Chemical Co., Ltd. Saitama Plant]  1-6 Ohmanocho, Koshigaya-shi, Saitama, Testing Division, Saitama Plant, Junsei Chemical Co., Ltd. TEL: Koshigaya (62) 6161	Alkali (as N	H <sub>3</sub> )		Max. 0.0005 %							
Ethyl alcohol  Substances reducing permanganate  Substances darkened by H <sub>2</sub> SO <sub>4</sub> Boiling range (64-66 °C)  ASSAY (by specific gravity)  Specific gravity (20/ 20 °C)  * Vinyl chloride  * Formaldehyde  PASSED  To pass test pass pass  Pass  Pass  Min. 95 v/v % pass  Min. 99.6 v/v % 99.9 %  Max. 0.794 0.7930  * About 0.02 ppm  About 0.02 ppm  * Formaldehyde  About 2.5 ppm or less  [seal: Seal of Junsei Chemical Co., Ltd. Saitama Plant] 1-6 Ohmanocho, Koshigaya-shi, Saitama, Testing Division, Saitama Plant, Junsei Chemical Co., Ltd. TEL: Koshigaya (62) 6161		lehyde (	as	Max. 0.005 %			0.001%				
Substances reducing permanganate  Substances darkened by $H_2SO_4$ To pass test pass  Boiling range (64-66 °C) Min. 95 v/v % pass  ASSAY (by specific gravity) Min. 99.6 v/v % 99.9 %  Specific gravity (20/ 20 °C) Max. 0.794 0.7930  * Vinyl chloride Max. 1 ppm About 0.02 ppm  * Formaldehyde Max. 3 ppm About 2.5 ppm or less  DECISION PASSED  [seal: Seal of Junsei Chemical Co., Ltd. Saitama Plant]  1-6 Ohmanocho, Koshigaya-shi, Saitama, Testing Division, Saitama Plant, Junsei Chemical Co., Ltd. TEL: Koshigaya (62) 6161											
permanganate Substances darkened by H <sub>2</sub> SO <sub>4</sub> To pass test Pass Boiling range (64-66 °C) Min. 95 v/v % Pass ASSAY (by specific gravity) Min. 99.6 v/v % Specific gravity (20/ 20 °C) Max. 0.794 Vinyl chloride Max. 1 ppm About 0.02 ppm * Formaldehyde  Max. 3 ppm About 2.5 ppm or less  [seal: Seal of Junsei Chemical Co., Ltd. Saitama Plant] 1-6 Ohmanocho, Koshigaya-shi, Saitama, Testing Division, Saitama Plant, Junsei Chemical Co., Ltd. TEL: Koshigaya (62) 6161	•			•			pass				
Substances darkened by $H_2SO_4$ To pass test pass  Boiling range (64-66 °C) Min. 95 v/v % pass  ASSAY (by specific gravity) Min. 99.6 v/v % 99.9 %  Specific gravity (20/ 20 °C) Max. 0.794 0.7930  * Vinyl chloride Max. 1 ppm About 0.02 ppm  * Formaldehyde Max. 3 ppm About 2.5 ppm or less  DECISION PASSED  [seal: Seal of Junsei Chemical Co., Ltd. Saitama Plant]  1-6 Ohmanocho, Koshigaya-shi, Saitama, Testing Division, Saitama Plant, Junsei Chemical Co., Ltd. TEL: Koshigaya (62) 6161			ng	Max.	0.001	5 %	pas	S			
Boiling range (64-66 °C)  ASSAY (by specific gravity)  Specific gravity (20/ 20 °C)  * Vinyl chloride  * Formaldehyde  Max. 3 ppm  About 2.5 ppm or less  [seal: Seal of Junsei Chemical Co., Ltd. Saitama Plant]  1-6 Ohmanocho, Koshigaya-shi, Saitama, Testing Division, Saitama Plant, Junsei Chemical Co., Ltd. TEL: Koshigaya (62) 6161											
ASSAY (by specific gravity)  Specific gravity (20/ 20 °C)  * Vinyl chloride  * Formaldehyde  Max. 3 ppm  About 2.5 ppm or less  [seal: Seal of Junsei Chemical Co., Ltd. Saitama Plant]  1-6 Ohmanocho, Koshigaya-shi, Saitama, Testing Division, Saitama Plant, Junsei Chemical Co., Ltd. TEL: Koshigaya (62) 6161				_			-				
* Vinyl chloride  * Vinyl chloride  * Wax. 0.794  * Wax. 1 ppm  About 0.02  ppm  * Formaldehyde  * Max. 3 ppm  About 2.5  ppm or less  [seal: Seal of Junsei Chemical Co., Ltd.  Saitama Plant]  1-6 Ohmanocho, Koshigaya-shi, Saitama,  Testing Division, Saitama Plant,  Junsei Chemical Co., Ltd.  TEL: Koshigaya (62) 6161	)	_ \					•				
* Vinyl chloride  Max. 1 ppm About 0.02 ppm  * Formaldehyde  Max. 3 ppm About 2.5 ppm or less  [seal: Seal of Junsei Chemical Co., Ltd. Saitama Plant] 1-6 Ohmanocho, Koshigaya-shi, Saitama, Testing Division, Saitama Plant, Junsei Chemical Co., Ltd. TEL: Koshigaya (62) 6161											
* Formaldehyde  * Max. 3 ppm  About 2.5 ppm or less  [seal: Seal of Junsei Chemical Co., Ltd. Saitama Plant]  1-6 Ohmanocho, Koshigaya-shi, Saitama, Testing Division, Saitama Plant, Junsei Chemical Co., Ltd. TEL: Koshigaya (62) 6161			/ 20 °C)								
* Formaldehyde  Max. 3 ppm About 2.5 ppm or less  [seal: Seal of Junsei Chemical Co., Ltd. Saitama Plant]  1-6 Ohmanocho, Koshigaya-shi, Saitama, Testing Division, Saitama Plant, Junsei Chemical Co., Ltd. TEL: Koshigaya (62) 6161	* Vinyl chlo	ride		Max.	1 ppn	1	Abo	out	0.02		
ppm or less  [seal: Seal of Junsei Chemical Co., Ltd. Saitama Plant]  1-6 Ohmanocho, Koshigaya-shi, Saitama, Testing Division, Saitama Plant, Junsei Chemical Co., Ltd. TEL: Koshigaya (62) 6161											
DECISION  PASSED  [seal: Seal of Junsei Chemical Co., Ltd. Saitama Plant]  1-6 Ohmanocho, Koshigaya-shi, Saitama, Testing Division, Saitama Plant, Junsei Chemical Co., Ltd. TEL: Koshigaya (62) 6161	* Formaldel	ıyde		Max.	3 ppn	1					
DECISION  PASSED  Saitama Plant]  1-6 Ohmanocho, Koshigaya-shi, Saitama, Testing Division, Saitama Plant, Junsei Chemical Co., Ltd. TEL: Koshigaya (62) 6161	1										
DECISION  PASSED  1-6 Ohmanocho, Koshigaya-shi, Saitama, Testing Division, Saitama Plant, Junsei Chemical Co., Ltd. TEL: Koshigaya (62) 6161				[5	seal: Seal				Co., Ltd.		
Testing Division, Saitama Plant, Junsei Chemical Co., Ltd. TEL: Koshigaya (62) 6161	DECIGION				1-6 Ohma				Saitama.		
TEL: Koshigaya (62) 6161	DECISION	I	PASSED		Testi	ng Divisior	, Saita	ma Pl	ant,		
							aya (62	) 616	1		

07/21/83

Governmental Commission	ME	Certifica	te of A	nalysis			No	0. 03474	
Methanol	58	TO:			Sep	temb	er 8,	1983	
Delivery No. 1	1	ı		Testers	[seal:			[seal:	
g :	<del></del>				Uyama		_	Tokuno]	
Specimen:	_	Methanol thyl Alcohol)	Test (	Grade:	Pure C	irade	<u>e 1</u>	grade	
Test Date:		st 25, 1983	Climate: Weather: Temp:						
Date of Mfg.:	Augus	st 23, 1903	Quant			14 kg			
Lot No.:		8H1562	Rema			1 T IX	5 1.	10	
Lot 11o	<u> </u>	0111002							
Items			Stanc	lards		Ass	ay V	/alue	
Solubility in	water		To pass test Pass						
Water			Max. 0.3 % 0.015 %					%	
Non-volatile	matter		Max. 0.003 % trace						
Acid (as HC	OOH)		Max.	0.004	. %	0.0	003	%	
Alkali (as NI	H <sub>3</sub> )		Max.	Max. 0.0005 %			trace		
Acetone, ald	ehyde (	as	Max.	Max. 0.005 %			0.001%		
CH <sub>3</sub> COH <sub>3</sub> )									
Ethyl alcoho	ol		То ра	ass tes	t	pass			
Substances	reducin	ıg	Max.	0.001	5 %	pas	ss		
permangana									
Substances	darken	ed by H <sub>2</sub> SO <sub>4</sub>	То ра	ass tes	t	pas	ss		
Boiling rang				95 v/v		pas			
ASSAY (by s				99.6 v			9 %		
Specific grav		/ 20 °C)		0.794			930		
* Vinyl chlor	ride		Max. 1 ppm About 0.02					0.02	
			ppm						
* Formaldeh	ıyde		Max. 3 ppm About 2.5						
			ppm or less						
DECISION	Ī	PASSED	[seal: Seal of Junsei Chemical Co. Saitama Plant] 1-6 Ohmanocho, Koshigaya-shi, Saita Testing Division, Saitama Plant, Junsei Chemical Co., Ltd.					Saitama, ant,	
				TI	EL: Koshiga	aya (62	) 616	1	

Governmental	ME
Commission	
Methanol	58

Methanol

November 1, 1983

8J4062

December 8, 1983

TO: Mitsubishi Kasei Institute of Toxicology and Environmental Sciences

[seal: Received]

ME

58

Governmental

Commission

Mitsubishi Kasei Institute of Toxicology and Environmental Sciences, Ltd

Testing Division, Saitama Plant, Junsei Chemical Co., Ltd. 1-6 Ohmanocho, Koshigaya-shi,

Saitama,

TEL: (0489) 86-6161

[seal: Seal of Junsei Chemical Co., Ltd.

Saitama Plant]

[seal: Tokuno]

TO:

Testing Division, Saitama Plant, Junsei Chemical Co., Ltd. 1-6 Ohmanocho, Koshigaya-shi, Saitama,

TEL: (0489) 86-6161

[seal: Seal of Junsei Chemical Co., Ltd.

Saitama Plant]

[seal: Tokuno]

Delivery No. 12

### Certificate of Analysis

Specimen: Pure Grade 1 Methanol (Methyl Alcohol)

Test Date: October 24, 1983

Quantity: 14 kg x 10

Lot No.: 8I4062 < Decision> Passed

Tester: Nita Supervisor: Tokuno

<items></items>		<standards></standards>	<assay value=""></assay>
Solubility in water		Within limit	Within limit
Specific gravity (20/20 °C)		0.794 or less	0.7930
Fraction (64-65 °C)	$_{ m V/V}$ %	95 or more	pass
Water	%	0.3 or less	0.040
Non-volatile matter	%	0.003 or less	0.0003 or less
Acid	%	0.002 or less	0.0002
Alkali	%	0.0003 or less	0.0000
Ethanol		Within limit	Within limit
Substances reducing		Within limit	Within limit

permanganate
Substances darkened by sulfate
Content
Within limit
Within limit
99.6 or more
99.9

Vinyl chloride 1 ppm or less About 0.03 ppm Formaldehyde 3 ppm or less About 2.5 ppm or

less

Delivery No. 13

### Certificate of Analysis

Specimen: Pure Grade 1 Methanol (Methyl Alcohol)

Test Date: December 5, 1983 Quantity: 14 kg x 10

Lot No.: 8L1014 < Decision > Passed

Tester: Nita Supervisor: Tokuno

(Itamas)		Cton dondos	A Value
<items></items>		<standards></standards>	<assay value=""></assay>
Solubility in water		Within limit	Within limit
Specific gravity (20/ 20 °C)		0.794 or less	0.7930
Fraction (64-65 °C)	v/v %	95 or more	pass
Water	%	0.3 or less	0.009
Non-volatile matter	%	0.003 or less	0.0003 or less
Acid	%	0.002 or less	0.0002
Alkali	%	0.0003 or less	0.0000
Ethanol		Within limit	Within limit
Substances reducing		Within limit	Within limit
permanganate			
Substances darkened by sulfate		Within limit	Within limit
Content	%	99.6 or more	99.9
Vinyl chloride		1 ppm or less	About 0.015
Formaldehyde		3 ppm or less	About 2.5 or less

Governmental	ME
Commission	
Methanol	59

April 23, 1984

TO:

Testing Division, Saitama Plant, Junsei Chemical Co., Ltd. 1-6 Ohmanocho, Koshigaya-shi, Saitama,

TEL: (0489) 86-6161

[seal: Seal of Junsei Chemical Co., Ltd.

Saitama Plant]

[seal: Tokuno]

Delivery No. 14

### Certificate of Analysis

Specimen: Pure Grade 1 Methanol (Methyl Alcohol)

Test Date: April 18, 1984 Quantity: 14 kg x 10

Lot No.: 9D1379 < Decision> Passed

Tester: Nita Supervisor: Tokuno

<items> Solubility in water</items>		<standards> Within limit</standards>	<assay value=""> Within limit</assay>
Specific gravity (20/20 °C)		0.794 or less	0.7930
Fraction (64-65 °C)	$_{ m V/V}$ %	95 or more	pass
Water	%	0.3 or less	0.035
Non-volatile matter	%	0.003 or less	0.0003 or less
Acid	%	0.002 or less	0.0004
Alkali	%	0.0003 or less	trace
Ethanol		Within limit	Within limit
Substances reducing		Within limit	Within limit
permanganate			
Substances darkened by sulfate		Within limit	Within limit
Content	%	99.6 or more	99.9
Vinyl chloride		1 ppm or less	About 0.07
Formaldehyde		3 ppm or less	About 2.5
Fraction (64-65 °C) Water Non-volatile matter Acid Alkali Ethanol Substances reducing permanganate Substances darkened by sulfate Content Vinyl chloride	% % % %	95 or more 0.3 or less 0.003 or less 0.002 or less 0.0003 or less Within limit Within limit Within limit 99.6 or more	pass 0.035 0.0003 or less 0.0004 trace Within limit Within limit Within limit 99.9 About 0.07

### Mr. Matsuura, Safety Institute

[seal: Namiki, 8/24/84, (Tada)]

Governmental ME Commission Methanol 59

[seal: Takeda, 8/27/84,

08/24 10:41 AM JUNSEI SAITAMA #01

(Kazu)]

August 24, 1984

TO: Mitsubishi Kasei Institute of Toxicology and Environmental Sciences

Testing Division, Saitama Plant, Junsei Chemical Co., Ltd. 1-6 Ohmanocho, Koshigaya-shi, Saitama,

TEL: (0489) 86-6161

[seal: Seal of Junsei Chemical Co., Ltd.

Saitama Plant]

[seal: Tokuno]

### Certificate of Analysis

Specimen: Pure Grade 1 Methanol (Methyl Alcohol)

Test Date: August 6, 1984 Quantity: 14 kg x 10

Lot No.: 9H1091 < Decision> Passed

Tester: Nita Supervisor: Tokuno

<items></items>		<standards></standards>	<assay value=""></assay>
Solubility in water		Within limit	Within limit
Specific gravity (20/ 20 °C)		0.794 or less	0.7930
Fraction (64-65 °C)	v/v %	95 or more	pass
Water	%	0.3 or less	0.016
Non-volatile matter	%	0.003 or less	0.0003 or less
Acid	%	0.002 or less	0.0004
Alkali	%	0.0003 or less	trace
Ethanol		Within limit	Within limit
Substances reducing		Within limit	Within limit
permanganate			
Substances darkened by sulfate		Within limit	Within limit
Content	%	99.6 or more	99.9
Vinyl chloride		1 ppm or less	About 0.05
Formaldehyde		3 ppm or less	About 2.5 or less

# Support Document 4: Records on Operating Conditions of Long-Term Inhalation Study Facility (Inside the Inhalation Laboratory) Daily Inspection Chart (Outside the Inhalation Laboratory)

Records on Operating Conditions of Methanol Inhalation Facility

Strain: Rats/ Mice Page - 1

1	Month/	Day (D	ate)		/	(Mon	) /	(Tue)	/	(We	ed)	/	Γ)	Thu)	/	(F	ri)	/	(5	Sat)	/	(S	Sun)
	Recorder		Tiı	ne		:		:		:				:			:			:			:
	Temperature	)	22 ±	2 °C						I			<u> </u>						I				
	Differential pres	sure	Posi pres																				
Nursery	Automatic feed v	water		g/ cm <sup>2</sup>																			
ž	Humidifier feed pressure	water	kg/																				
	Dionizer		Indic	cator																			
er	<i>No.</i> 1 (1000 ppm)																						
	2 (100 ppm)		23 ±	2°C																			
e Ch	3 (10 ppm)																						
de th	4 (0 ppm)																						
Temp. inside the Chamber	Temperature al:  → All func		°( ıtdown	C																			
		<i>No.</i> 1	(1000 p	pm)																			
	Methanol Level	2	(100 pp	om)																			
		3	(10 ppr	n)																			
.olle	Gain (ml/ min.)																						
Controller	P (%)	No. 1	No. 2	No. 3																			
	I (min.)																						
	D (min.)																						

2		Month/ D	Day	/	(Mon)	/	(Tue)	/	(Wed)	/	(Thu)	/	(Fri)	/	(Sat)	/	(Sun)
		Operation shutd	own time	:		:		:		:		:		:		:	
me		Operation sta	rt time	:		:		:		:		:		:		:	
Operation Time		Duration of sh	utdown	hr	min.												
ratio		Duration of op	peration	hr	min.												
Ope		Total operation	ng time	hr	min.												
t)	1	Flow rate	$m^2/hr$														
ntras	Differe	ential pressure (-)	$10 \pm 8 \text{ mmAq}$														
Chamber 4 (Contrast)	Differe alarm	ential pressure	18 mmAq														
	Differe	ential pressure	2 mmAq														
haml	alarm	min. ential pressure	mmAq														
ū	alarm a	auto restoration	•														
		Flow rate	m <sup>2</sup> / hr														
	Differe	ential pressure (-)	$10 \pm 8 \text{ mmAq}$														
		Methanol Level	10 %														
(W)	Analyzer	Range	/														
(Tc	Ana	ZERO	Before → after														
ber 3		SPAN	calibration														
Chamber 3 (Low)	Sampling	4	rate (1 ml/ min.)														
	Pump	Change cock	Measure-(closed)														
	Metha	nol fluid level															
																	_

	Month/ D	Day	/	(Mon)	/	(Tue)	/	(Wed)	/	(Thu)	/	(Fri)	/	(Sat)	/	(Sun)
I	Flow rate	m²/ hr														
Differe	ntial pressure (-)	10 ± 8 mmAq														
	Methanol Level	50 %														
ılyzeı	Range	/														
Ana	ZERO	Before → after														
	SPAN	calibration														
Sampling	Sample flow r	ate (1 ml/ min.)														
Pump	Change cock	Measure-(closed)														
Methai	nol fluid level															
		m²/ hr														
Differe	ntial pressure (-)	$10 \pm 8 \text{ mmAq}$														
	Methanol Level	666 %														
ılyze		/														
Ana																
	SPAN	calibration														
Sampling	Sample flow r															
Pump	Change cock	Measure-(closed)														
Methai	nol fluid level															
	Differe  Sampling Pump  Methan  Differe  Sampling Pump	Flow rate  Differential pressure (-)  Methanol Level Range  ZERO SPAN  Sampling Pump Change cock  Methanol fluid level  Flow rate  Differential pressure (-)  Methanol Level Range  ZERO SPAN  Sample flow rate  Server Angle Sample flow rate  Sample flow rate  Differential pressure (-)  SPAN  Sampling Sample flow rate  Sample flow rate  Sample flow rate  Sample flow rate	Differential pressure (-)   10 ± 8 mmAq     Methanol	Flow rate	Flow rate	Flow rate	Flow rate m²/ hr  Differential pressure (-) 10 ± 8 mmAq  Methanol 50 %  Level Range /  ZERO Before → after  SPAN calibration  Sampling Pump Change cock Measure—(closed)  Methanol fluid level  Flow rate m²/ hr  Differential pressure (-) 10 ± 8 mmAq  Methanol fluid level  Flow rate m²/ hr  Differential pressure (-) 10 ± 8 mmAq  Methanol 666 %  Level Range /  ZERO Before → after  SPAN calibration  Sampling Pump Sampling Sample flow rate (1 ml/ min.)  Change cock Measure—(closed)	Flow rate m²/ hr  Differential pressure (-) 10 ± 8 mmAq  Methanol 50 % Level Range / ZERO Before → after SPAN calibration  Sampling Pump Change cock Measure—(closed)  Methanol fluid level  Flow rate m²/ hr  Differential pressure (-) 10 ± 8 mmAq  Methanol fluid level  Flow rate m²/ hr  Differential pressure (-) 10 ± 8 mmAq  Methanol Level Range / ZERO Before → after SPAN calibration  Sampling Pump Change cock Measure—(closed)  Sample flow rate (1 ml/ min.)  Sampling Sample flow rate (1 ml/ min.)  Change cock Measure—(closed)	Flow rate m²/ hr  Differential pressure (-) 10 ± 8 mmAq  Methanol	Flow rate m²/hr  Differential pressure (-) 10 ± 8 mmAq  Methanol Level Range /  ZERO Before → after  SPAN calibration  Sample Pump Change cock Measure—(closed)  Methanol fluid level  Flow rate m²/hr  Differential pressure (-) 10 ± 8 mmAq  Methanol fluid level  Methanol 666 %  Level Range /  ZERO Before → after  SPAN calibration  Sample flow rate (1 ml/ min.)  Change cock Measure—(closed)	Flow rate m²/ hr  Differential pressure (-) 10 ± 8 mmAq  Methanol Level Range /  ZERO Before → after calibration  Sample flow rate (1 ml/ min.)  Change cock Measure—(closed)  Methanol fluid level  Flow rate m²/ hr  Differential pressure (-) 10 ± 8 mmAq  Methanol fluid level  Flow rate sample flow rate (1 ml/ min.)  Elevel Range /  ZERO Before → after calibration  Sample flow rate m²/ hr  Differential pressure (-) 10 ± 8 mmAq  Methanol flow flow flow flow flow flow flow fl	Flow rate	Flow rate	Flow rate	Flow rate   m²/ hr	Flow rate

<u>Page - 4</u>

	Month/ Day (Date)		/	(M	(on)	,	/	(Tı	ıe)	,	/	(W	ed)	,	/	(Tł	nu)	/	′	(Fr	i)		/	(Sa	at)	,	/	(Su	n)
4	Recorder Time				:				:				:			:	:				:				:			:	
	Temperature inside the chamber							ı				I								ı									
Animal Room	Differential pressure inside the chamber																												
nimal	Humidifier feed water pressure (1.5 kg/ cm <sup>2</sup> )																												
¥	Automatic feed water pressure (0.3-0.6 kg/ cm <sup>2</sup> )																												
pa.	Feeding status																												
Untreated Group	Drinking water status																												
L C	Filter cap																												
	Temperature inside the chamber	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
	Feeding status																												
sdn	Automatic feed water valve (open)																												
Inhaling Groups	Automatic feed water joint (connection)																												
Inhali	Differential pressure inside the chamber (10 mmAq)																												
	Air flow rate ( $m^2/hr$ )																												
	Methanol level																												
Remarks																													

### Daily Inspection Chart for Methanol Inhalation Facility (1)

		/		/	,	/	,	/	,	/		/	,	/
Unit	:	:	:	:	:	:	:	:	:	:	:	:	:	:
		: : : :				 						: : : :		
°C		! !		:		! ! !		! ! !		! ! !		! !		: : :
°C		<u>.                                    </u>		<del></del>		<u> </u> 		! ! !		     		<u>.                                    </u>		
°C		 				! ! !		 		 		 		1
°C		! !				 						! !		
°C		  -  - 				! !						  -  - 		
°C		1 1 1 1				1 1 1 1		 		 		1 1 1 1		:
°C		!		:		: : :						!		
°C		! !				! ! !		! ! !		! ! !		! !		
%		I I I		! !		 		       		       		I I I		!
%		:		:		! ! !		 		 		:		
	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N
		1 1 1 1				1 1 1 1 1		1 1 1 1 1		1 1 1 1 1		1 1 1 1		:
		:		:		1 1 1 1						:		
°C		: : :				! ! !						: : :		
°C						: : :								
°C						! !								:
°C						; i i i								
%		 				 		1 1 1 1 1		 		 		
%		1 		: : :		1 1 1 1		 		 		1 		 
		! ! !				† 						! ! !		
		! !				1		1		i i i		! !		
	°C °C °C °C % % % % % % % % % % % % % %	°C °C °C °C °C °C °C °C °C %	°C	°C	°C          °C          °C          °C          °C          °C          °C          °C          %          %          %          °C          °C          °C          °C          °C          °C          °C          °C          %	°C       °C         °C       °C         °C       °C         °C       °C         °C       °C         °C       °C         %       °C         %       V/N         Y/N       Y/N         Y/N       Y/N         °C       °C         °C       °C         °C       °C         °C       °C         °C       °C         °C       °C         %       °C	°C	°C	°C         °C <td>°C         °C           °C         °C           %         °C           %         °C           °C         <td< td=""><td>°C   </td><td>°C  </td><td>°C         0°C         0°C</td><td>°C   </td></td<></td>	°C         °C           %         °C           %         °C           °C         °C           °C <td< td=""><td>°C   </td><td>°C  </td><td>°C         0°C         0°C</td><td>°C   </td></td<>	°C	°C	°C         0°C         0°C	°C

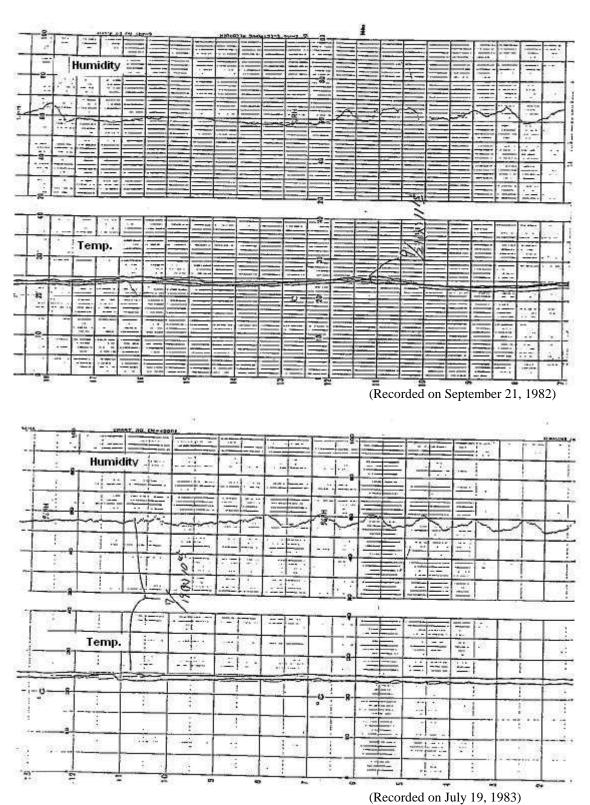
### Daily Inspection Chart for Methanol Inhalation Facility (2)

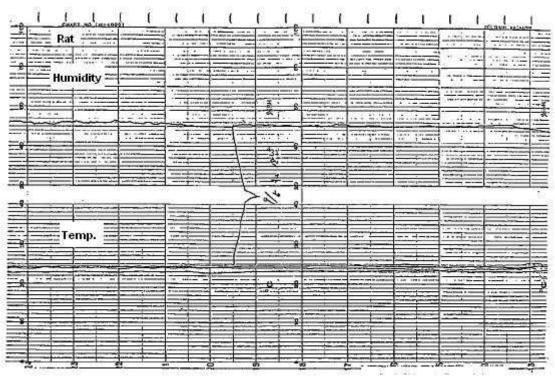
Inspection Time & Date			/		/		/	,	/	,	/		/		/
Inspection Item	Unit	:	:	:	:	:	:	:	:	:	:	:	:	:	:
Chamber internal pressure	mmAq		i !						i !						
RH-2 electric heater lamp ON			1 ! !		1 ! !		! !		1 ! !				! !		-
RH-1 electric heater lamp ON			! ! ! !		 ! ! !		! !		! ! ! !				! !		:
RH-1 humidity heater lamp ON															
AH-1 humidity heater lamp ON			     						     						
AH-1 cool water electromagnetic valve lamp ON			! ! ! !		! ! !		, ! ! ! !		! ! ! !				, ! ! !		
AH-1 warm water electromagnetic valve lamp ON			! ! ! !		! !		!		! ! ! !				! ! !		
Chiller peripherals															
Chiller operating lamp ON			1 1 1 1				1 1 1		1 1 1 1				1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1		1
Cold water temp. (Out)	°C		1 ! !						1 ! !						
(In)	°C		i i i				1		1 1 1						
Cooling water temp. (Out)	°C		1						1						1
(In)	°C		 		: :		<u> </u>		 				 		1
R – M – 1 (Roof)			! ! !		• • •				! ! !				:		:
No. 1 air blower electric current	5.8 A		! ! !		! !				! ! !						1
No. 2	5.8 A		! ! !		 ! ! !		 		! ! !				 		
No. 1 exhauster electric current	3.0 A														
No. 2	3.0 A		 		; ; ; ;				 				<u> </u> 		-
Cooling water pump electric current	1.0 A		! ! ! !				:		! ! ! !				!		
Cold water pump electric current	1.0 A		! ! !		! ! !		i !		 				! ! !		1
Chiller electric current	6.0 A		! ! !		: : :				! ! !						
Washing tower pump electric current	2.5 A		:    -  -  -  -				; ! ! !		; 				; ! !		
Coil unit humidifier electric current	6.0 A		 				1 1 1 1		 				1 1 1 1	_	

### Daily Inspection Chart for Methanol Inhalation Facility (3)

Inspection Time & Date			/		/	,	/		/	,	/		/		/
Inspection Item	Unit	:	:	:	:	:	:	:	:	:	:	:	:	:	:
Reheater heater No. 1 electric current	3.0 A				1		: : :		: : :		: : :		: : : :		
Reheater heater <i>No</i> . 2 electric current	3.0 A														
Reheater humidifier electric current	3.2 A		1						i ! !				i ! ! !		
Rooftop Piping Peripherals			-		-		! ! !		1 1 1		! ! !		! ! !		
Air blower front pressure	kg/cm <sup>2</sup>		:		:								: : :		
Air blower rear pressure	kg/cm <sup>2</sup>		1		1		i i i		<del> </del>  -  -		i i i		i ! !		
Differential pressure of activated charcoal filter for air supply					 		! ! ! !				! ! ! !		! ! ! !		
Differential pressure of medium performance filter for air supply	2.5 mmAq exchange		1						; ; ; ;				i I I I		
Differential pressure of high performance filter for air supply	5.0 mmAq exchange		1		 				1 1 1 1 1				1 1 1 1 1		
AHU inlet temperature	°C								!						
AHU inlet pressure	kg/cm <sup>2</sup>		: :		1				1				i : :		:
AHU outlet temperature	°C		:		-										
AHU outlet pressure	kg/cm <sup>2</sup>				; ; ;				i i i				i ! !		:
AHU cold water inlet temp.	°C		:		:				1						:
outlet temp.	°C				!				1				 		:
AHU warm water inlet temp.	°C		:		!										•
outlet temp.	°C		:		- - - - -		<del>:</del> : :				<del>:</del> : :		: : :		
Exhaust/ hair filter differential pressure	1.5 mmAq exchange		i    -  -  -						i ! !		î 		i    -  -  -  -		
Exhaust high performance filter differential pressure	5.0 mmAq exchange								 						
Steam flow (x 100 kg)	Reading														
			<u> </u>		!								: !		
External temperature			:		:		! ! !		!				! ! !		
			i ! !		; ! !		-    - 		i ! !		-    - 		i ! !		

# **Support Document 5: A Record of Temperature and Humidity Inside the Exposure Chamber (One Example)**





(Recorded on September 5, 1984)

### **Support Document 6:** Details of Animal Care and Management

### 1. Method of Feeding and Providing Water

### (1) Method of Feeding

Autoclave-sterilized solid diet for mice, rats and hamsters (CRF-1 manufactured by Charles River Japan) was freely available in a feeder attached to each inhalation chamber.

When necessary, food consumption was monitored using a special feeder designed specifically for measuring the amount of intake.

The nutritional design of the food allows for autoclave sterilization. See attachment for food ingredients.

### (2) Method of Providing Water

Tap water that has been filtered through a filter with 5  $\mu$  filtration accuracy and then ran through a ultra violet water sterilizer (T-SS-11-B manufactured by Tokiwa Kagaku Kikai) was freely available in a water feeder during acclimation and quarantine period and then in an automatic feedwater unit (with touch-sensitive mouthpiece) attached to each inhalation chamber after test animals were moved to the chambers.

The quality of tap water used for drinking was tested every six months. See attachment for test results.

### 2. Entering the Inhalation Laboratory

Entry to the barrier system (hereafter, "BS") is done in the following manner: Remove clothing except for underwear at dressing room, and wash and sterilize face, forearms, hand and fingers, lower legs and toes. Then, at the dressing room on the BS side, wear a dust-free hat and a suit, mask, gloves, socks and shoes, and enter the BS. During above, one must pass through four separate rooms, and this setup considerably lowers the chance of contaminating the BS by infection, etc.

The photograph of the outfit to be worn inside the BS is shown. Details of entry procedure to the BS are also shown at the end.

3. Sterilizing Method of Equipments, etc.

All equipments used within the BS are disinfected and sterilized by one of the following methods:

(a) Autoclave

All items that can be sterilized by high-pressure steam were sterilized in autoclave for 15 minutes under 1.2 kg/cm<sup>2</sup>, 125 °C.

Manufacturer: Udono, Ltd. Capacity: 2.049 m<sup>3</sup> x 1 unit 0.115 m<sup>3</sup> x 1 unit

(b) Ethylene oxide gas

Anprolene (Manufactured by Andersen Products, Inc.)

(c) Chemical disinfection

Items that cannot be sterilized by methods (a) or (b) were disinfected by one of the following chemicals prior to taking inside the BS:

- Microcut (EL K.K.)
- Sodium hypochlorite solution (Tsuruchlone, Tsurumi Soda, Co., Ltd.)
- Hibitane (5 % Hibitane solution, Sumitomo Chemical Co., Ltd.)

The effect of autoclave sterilization was tested by either Sterilization Tespor S (Eiken Chemical Co., Ltd.) or Autoclave Tape (Hirasawa Seisakusho), and the effect of ethylene oxide gas sterilization was tested by either dosimeter (Andersen Products, Inc.) or Sterilization Tespor S (Eiken Chemical Co., Ltd.).

### 4. Barrier System Maintenance

(a) Frequency of replacing the cages: Acclimation and quarantine period: Once/ wk
Exposure period: Once/ 2 wks

- (b) Frequency of replacing the feeders and water feeders:

  Once/ wk
- (c) Frequency of replacing the trays for inhalation cages: Twice/ wk (mice) 3 times / wk (rats)

(d) Frequency of rotating the cages: Once/ 2 wks (Rotation of the location of cage within the chamber, i.e., between upper, middle and lower layer)

- (e) Cleaning and Disinfection
  - Exposure chamber: Once/ 2 wks (during cage replacement); Chemical used: Microcut
  - Hand and finger: As needed. Chemical used: Microcut
  - Inhalation lab floor: Upon completion of work; Chemical used: Sodium hypochlorite solution 240 ppm
  - Inhalation lab wall/ceiling: Once/ month; Chemical used: Sodium hypochlorite solution 240 ppm
  - Sterilization preparation room, bathroom and hallway:

Once a day dry bath using Microcut. In addition, during the night time, automatically spray a mixture of Microcut and Hibitane for 15 minutes once a day. • Backup animal room: Prior to bringing in animals as well as upon completion of

the test, spray sodium hypochlorite solution (500 ppm) without supplying or evacuating air (leave for at least one

day or longer)

• Dressing room: Constantly irradiate with ultra violet light



Outfit inside the Barrier System

2/4/83 in...

Analysis Report
-----------------

No.	
	(Page 1 of 3)

TO: Research Institute,
Mitsubishi Chemical Corporation

3-6-10 Azusawa, Itabashi-ku, Tokyo 174 Bioresearch Laboratory, Bioindustry Division Oriental Yeast Co., Ltd.

Specimen:	November	1982	<u>installment</u>	
Requester				

TEL: 03 (968) 1111

Implementation Method: In-house Analysis Standards	Date of Report 1/31		/1983	
		[seal: Suwa]		[seal: Kitamura]
	Tester	Reporter	Mgr.	GM

(%)

Specimen	Test Item	Moisture Content	Crude Protein	Crude Fat	Crude Ash	Crude Fiber	Nitrogen-free Extract
Specimen .			11000111	1	1 2011	11001	2
MF	Lot 11-67	8.3	24.9	5.8	6.1	3.2	51.7
NMF	11-51	7.7	29.1	5.8	8.3	4.7	44.4
CMF	11-52	8.8	29.6	8.5	6.4	3.9	42.8
CRF-1	11-58	8.2	23.1	6.2	6.3	3.6	52.6
ORC4	11-54	7.8	20.4	3.1	9.0	14.2	45.5
RC4	11-60	7.6	21.8	2.8	8.7	14.3	44.8
GC4	11-54	7.2	23.9	4.4	8.6	13.1	42.8
AB	11-51	8.4	26.2	7.1	4.4	1.1	52.8
DB	11-52	8.1	29.0	5.8	5.7	1.3	50.1
DS	11-52	7.8	28.8	8.5	6.1	3.2	45.6
CS	11-65	6.3	33.5	10.4	7.4	3.2	39.2
				Blank be	low		
				I	I	I	
Report							

Anal	ysis	Re	port

1 III y SIS 1	tepore				
			<u>N</u>	lo.	
TO:				(Pa	age 2 of 3)
	3-6-10 Azu	sawa, Ita	abas	hi-ku, To	okyo 174
	Bioresearch Laboratory,				
	Bioindustry Division				
Specimen: November 1982 installment	Oriental Ye	ast Co.,	Ltd.	<u>.</u>	
Requester:		TEL	: 03	(968) 11	11
Implementation Method: In-house Analysis Standards	Date of F	Report			
Data marked with asterisk are based on					[seal:
Japan Food Research Laboratories					Kitamura]
	Tester	Repor	ter	Mgr.	GM

Caralina a	Test Item	NMF	CRF-1	ORC4	Detection
Specimen		(11-51)	(11-58)	(11-54)	Limit (ppm)
Pb	(ppm)	0.54	0.47	0.86	
Cd	(ppm)	0.12	0.06	0.06	
* As	(ppm)	0.6	0.4	0.2	
Cr (Total)	(ppm)	0.39	0.35	1.27	
HG (Total)	(ppm)	0.01	0.01	0.01	
Nitrite	(ppm)	1.0	0.8	Not detected	0.3
Aflatoxin (B <sub>1</sub> B <sub>2</sub> G	<sub>1</sub> G <sub>2</sub> )	Not detected	Not detected	Not detected	0.01
* PCB (Total)		Not detected	Not detected	Not detected	0.01
* BHC (Total)		Not detected	Not detected	Not detected	0.05
* Aldrin		Not detected	Not detected	Not detected	0.01
* Heptachlor		Not detected	Not detected	Not detected	0.01
* Dieldrin		Not detected	Not detected	Not detected	0.01
* DDT (Total)		Not detected	Not detected	Not detected	0.1
Parathion		Not detected	Not detected	Not detected	0.01
Malathion	(ppm)	0.94	0.92	0.54	
Report					

GM

Analysis F	<u>Report</u>				
TO:			1	No. (Pa	ige 3 of 3)
Specimen: November 1982 installment	3-6-10 Azusaw Bioresearch I Bioindustry I Oriental Yeast	Labor Divisi	ato on	ry,	kyo 174
Requester:				(968) 11	11
Implementation Method: In-house Analysis Standards	Date of Rep	ort			
		1			[seal: Kitamura]

Tester

Reporter

Mgr.

(piece/g)

Specimen	Test Item	General Viable Count	Coli	Salmonella	Fungi	
		Coulit	Group	~	i ungi	
MF	Lot 11-67	2.0 x 10 <sup>4</sup>	0	0	1	
NMF	11-51	$5.0 \times 10^3$	0	0	2	
CRF-1	11-58	$1.2 \times 10^4$	0	0	5	
ORC4	11-54	1.5 x 10 <sup>4</sup>	0	0	2	
RC4	11-60	$2.5 \times 10^4$	0	0	5	
GC4	11-54	$3.7 \times 10^4$	0	0	12	
DS	11-52	$2.6 \times 10^{2}$	0	0	5	
			Blank	below		
Report						

### **Analysis Report**

No.	
	(Page 1 of 3)

TO: Research Institute,
Mitsubishi Chemical Corporation

3-6-10 Azusawa, Itabashi-ku, Tokyo 174 Bioresearch Laboratory, Bioindustry Division

Specimen:	September	1983	<u>installment</u>
Requester	_		

Oriental Yeast Co., Ltd. TEL: 03 (968) 1111

Implementation Method: In-house Analysis Standards	Date of R	Report	11-25	-1983
		[seal: Suwa]		[seal: Kitamura]
	Tester	Reporter	Mgr.	GM

(%)

Specimen	Test Item	Moisture Content	Crude Protein	Crude Fat	Crude Ash	Crude Fiber	Nitrogen-free Extract
MF	Lot 58-09-56	8.1	24.8	5.8	6.2	3.0	52.1
NMF	58-09-55	7.1	29.3	5.5	7.6	4.4	46.1
CMF	58-09-52	7.1	29.2	8.7	6.6	3.2	45.2
CRF-1	58-09-56	7.5	23.5	6.1	6.7	3.3	52.9
ORC4	58-09-69	7.3	19.9	3.1	8.8	13.9	47.0
RC4	58-09-57	7.0	22.5	3.7	8.9	13.9	44.0
GC4	58-09-64	6.4	24.1	4.3	8.7	12.7	43.8
AB	58-09-51	9.4	27.0	6.8	4.5	1.0	51.3
DB	58-09-52	7.6	28.8	5.1	6.1	1.1	51.3
DS	58-09-64	7.3	28.1	8.2	7.7	3.5	45.2
CS	58-09-70	7.0	32.9	10.9	8.2	3.4	37.6
				Blank be	low		

<u>Ana</u>	lysis	<u>Report</u>	

	No.
TO:	 (Page 2 of 3)

3-6-10 Azusawa, Itabashi-ku, Tokyo 174 Bioresearch Laboratory, **Bioindustry Division** Oriental Yeast Co., Ltd.

Specimen: September 1983 installment Requester:

TEL: 03 (968) 1111

### Implementation Method: In-house Analysis Standards Data marked with asterisk are based on

Japan Food Research Laboratories

Test Item Specimen	NMF (09-55)	CRF-1 (09-56)	ORC4 (09-64)	Detection Limit (ppm)
	,	,	, ,	\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\
Pb	0.27	0.32	0.54	
Cd	0.10	0.06	0.01	
* As	0.5	0.3	0.2	
Cr (Total)	0.46	0.27	0.99	
HG (Total)	0.01	0.01	0.01	
Nitrite	0.9	0.8	0.9	
Aflatoxin (B <sub>1</sub> B <sub>2</sub> G <sub>1</sub> G <sub>2</sub> )	Not detected	Not detected	Not detected	0.05
* PCB (Total)	Not detected	Not detected	Not detected	0.01
* BHC (Total)	Not detected	Not detected	Not detected	0.05
* Aldrin	Not detected	Not detected	Not detected	0.01
* Heptachlor	Not detected	Not detected	Not detected	0.01
* Dieldrin	Not detected	Not detected	Not detected	0.01
* DDT (Total)	Not detected	Not detected	Not detected	0.05
Parathion	Not detected	Not detected	Not detected	0.01
Malathion	0.57	0.63	0.33	
Report				

<u>Analysis F</u>	<u>Report</u>
	No.
TO:	(Page 3 of 3)
	3-6-10 Azusawa, Itabashi-ku, Tokyo 174
	Bioresearch Laboratory,
	Bioindustry Division
Specimen: September 1983 installment	Oriental Yeast Co., Ltd.
Requester:	TEL: 03 (968) 1111
Implementation Method: In-house Analysis Standards	

(piece/g)

Specimen	Test Item	(piece/ g) General Viable Count	Salmonella	Coli Group	Fungi	
MF	Lot 58-09-56	7.2 x 10 <sup>3</sup>	0	0	0	
NMF	58-09-55	$6.7 \times 10^3$	0	0	0	
CRF-1	58-09-56	1.2 x 10 <sup>4</sup>	0	0	1	
RC4	58-09-57	6.4 x 10 <sup>4</sup>	0	0	2	
GC4	58-09-64	2.5 x 10 <sup>4</sup>	0	0	9	
DS	58-09-64	8.3 x 10 <sup>1</sup>	0	0	0	
			Blank	below		
Report						

### **Analysis Report**

No.	
	(Page 1 of 3)

TO: Research Institute,
Mitsubishi Chemical Corporation

3-6-10 Azusawa, Itabashi-ku, Tokyo 174 Bioresearch Laboratory,

Bioindustry Division

Oriental Yeast Co., Ltd.

TEL: 03 (968) 1111

Specimen: March 1984 installment Requester:

Implementation Method: In-house Analysis Standards

Date of Report: 4-27-1984					
Shimizu	Kitamura				
Tester	Mgr.				

(%)

Specimen	Test Item	Moisture Content	Crude Protein	Crude Fat	Crude Ash	Crude Fiber	Nitrogen-free Extract
MF	Lot 59-03-58	8.5	24.4	5.4	6.3	3.5	51.9
NMF	59-03-57	7.9	29.1	5.4	8.1	4.6	44.9
CMF	59-03-51	7.9	29.4	9.1	6.6	3.4	43.6
CRF-1	59-03-51	8.6	22.3	6.1	6.5	3.4	53.1
RC4	59-03-62	7.2	22.4	3.1	8.5	13.8	45.0
ORC4	59-03-69	8.2	20.0	3.2	8.7	14.5	45.4
GC4	59-03-78	7.4	24.3	4.4	8.6	13.0	42.3
DB	59-03-51	7.7	28.4	5.3	6.1	1.2	51.3
DS	59-03-51	7.2	27.2	8.8	7.2	3.8	45.8
CS	59-03-63	5.3	33.7	9.9	8.5	3.2	39.4
NIH	59-03-55	7.4	27.3	7.2	7.4	3.6	47.1
				Blank be	low		

Report I hereby certify that the results of analysis above are records of analysis performed in accordance with set procedures. <u>QAU: *Tomio Suwa*</u>

<u>Analysis l</u>	Report			
	No.			
<u>TO:</u>	(Page 2 of 3)			
	3-6-10 Azusawa, Itabashi-ku, Tokyo 174 Bioresearch Laboratory, Bioindustry Division			
Specimen: March 1984 installment	Oriental Yeast Co., Ltd.			
Requester:	TEL: 03 (968) 1111			
Implementation Method: In-house Analysis Standards  Data marked with asterisk are based on	<u> </u>			
Japan Food Research Laboratories				

Test Item Specimen	NMF (03-57)	CRF-1 (03-51)		Detection Limit (ppm)
	(00 0.)	(00 01)		(PP)
Pb	0.27	0.22		
Cd	0.08	0.06		
* As	0.6	0.3		
Cr (Total)	0.40	0.30		
HG (Total)	0.02	0.01		
Nitrite	0.9	1.4		
Aflatoxin (B <sub>1</sub> B <sub>2</sub> G <sub>1</sub> G <sub>2</sub> )	Not detected	Not detected		0.005
* PCB (Total)	Not detected	Not detected		0.01
* BHC (Total)	Not detected	Not detected		0.05
* Aldrin	Not detected	Not detected		0.01
* Heptachlor	Not detected	Not detected		0.01
* Dieldrin	Not detected	Not detected		0.01
* DDT (Total)	Not detected	Not detected		0.05
Parathion	Not detected	Not detected		0.01
Malathion	0.84	1.23		
Report				

<u>Analysis F</u>	<u>Report</u>
	No.
TO:	(Page 3 of 3)
	3-6-10 Azusawa, Itabashi-ku, Tokyo 174
	Bioresearch Laboratory,
	Bioindustry Division
Specimen: March 1984 installment	Oriental Yeast Co., Ltd.
Requester:	TEL: 03 (968) 1111
Implementation Method: In-house Analysis Standards	

(piece/g)

	T 14	(piece/ g)	G-1:	C . 1 11 .	Б	1	
Specimen	Test Item	General Viable Count	Coli Group	Salmonella	Fungi		
MF	Lot 59-03-58	$7.3 \times 10^3$	0	0	3		
NMF	59-03-57	$6.8 \times 10^3$	0	0	1		
CRF-1	59-03-51	2.2 x 10 <sup>4</sup>	0	0	5		
RC4	59-03-62	$3.7 \times 10^5$	0	0	0		
GC4	59-03-78	$1.0 \times 10^5$	0	0	1		
DB	59-03-51	$4.2 \times 10^{2}$	0	0	1		
DS	59-03-51	$6.1 \times 10^{1}$	0	0	0		
CS	59-03-63	6.8 x 10 <sup>2</sup>	0	0	0		
			Blank	below			
Report							

#### **Analysis Report**

No.	
	(Page 1 of 3)

TO: Research Institute,
Mitsubishi Chemical Corporation

3-6-10 Azusawa, Itabashi-ku, Tokyo 174

Bioresearch Laboratory, Bioindustry Division

Specimen: September 1984 installment Requester:

Oriental Yeast Co., Ltd.

TEL: 03 (968) 1111

Implementation Method: In-house Analysis Standards

Date of Report: 11-26-1984					
Shimizu Kitamura					
Tester	Mgr.				

(%)

Test Item	Moisture Content	Crude Protein	Crude Fat	Crude Ash	Crude Fiber	Nitrogen-free Extract
Lot 59-09-53	6.8	25.1	5.8	6.5	3.1	52.7
59-09-55	6.7	28.6	5.5	7.8	4.0	47.4
59-09-51	7.8	29.3	8.5	6.6	3.3	44.5
59-09-52	7.4	23.4	6.1	6.6	3.4	53.1
59-09-63	7.4	21.4	2.7	8.6	13.3	46.6
59-09-69	7.7	19.1	2.7	8.7	15.0	46.8
59-09-75	7.0	23.7	3.6	8.7	12.7	44.3
59-09-55	8.2	25.0	6.6	4.5	1.0	54.7
59-90-57	7.3	27.2	8.6	7.3	3.1	46.5
			Blank be	low		
	Lot 59-09-53 59-09-55 59-09-51 59-09-52 59-09-63 59-09-69 59-09-75 59-09-55	Lot 59-09-53         6.8           59-09-55         6.7           59-09-51         7.8           59-09-52         7.4           59-09-63         7.4           59-09-69         7.7           59-09-75         7.0           59-09-55         8.2	Content         Protein           Lot 59-09-53         6.8         25.1           59-09-55         6.7         28.6           59-09-51         7.8         29.3           59-09-52         7.4         23.4           59-09-63         7.4         21.4           59-09-69         7.7         19.1           59-09-75         7.0         23.7           59-09-55         8.2         25.0	Content         Protein         Fat           Lot 59-09-53         6.8         25.1         5.8           59-09-55         6.7         28.6         5.5           59-09-51         7.8         29.3         8.5           59-09-52         7.4         23.4         6.1           59-09-63         7.4         21.4         2.7           59-09-69         7.7         19.1         2.7           59-09-75         7.0         23.7         3.6           59-09-55         8.2         25.0         6.6           59-90-57         7.3         27.2         8.6	Content         Protein         Fat         Ash           Lot 59-09-53         6.8         25.1         5.8         6.5           59-09-55         6.7         28.6         5.5         7.8           59-09-51         7.8         29.3         8.5         6.6           59-09-52         7.4         23.4         6.1         6.6           59-09-63         7.4         21.4         2.7         8.6           59-09-69         7.7         19.1         2.7         8.7           59-09-75         7.0         23.7         3.6         8.7           59-09-55         8.2         25.0         6.6         4.5	Content         Protein         Fat         Ash         Fiber           Lot 59-09-53         6.8         25.1         5.8         6.5         3.1           59-09-55         6.7         28.6         5.5         7.8         4.0           59-09-51         7.8         29.3         8.5         6.6         3.3           59-09-52         7.4         23.4         6.1         6.6         3.4           59-09-63         7.4         21.4         2.7         8.6         13.3           59-09-69         7.7         19.1         2.7         8.7         15.0           59-09-75         7.0         23.7         3.6         8.7         12.7           59-09-55         8.2         25.0         6.6         4.5         1.0           59-90-57         7.3         27.2         8.6         7.3         3.1

Report I hereby certify that the results of analysis above are records of analysis performed in accordance with set procedures. <u>QAU: Tomio Suwa</u>

<u>.</u>	Analysis Report	
	No.	
ГО:		(Page 2 of 3)
		, ,

3-6-10 Azusawa, Itabashi-ku, Tokyo 174 Bioresearch Laboratory, Bioindustry Division Oriental Yeast Co., Ltd.

Specimen: September 1984 installment Requester:

TEL: 03 (968) 1111

# Implementation Method: In-house Analysis Standards Data marked with asterisk are based on Japan Food Research Laboratories

Test Item NMF CRF-1 GC4 Detection Specimen (09-55)(09-52)(09-75)Limit (ppm) Pb 0.22 0.25 0.55 Cd 0.05 0.04 0.06 \* As 0.6 0.4 0.2 Cr (Total) 0.64 0.39 0.87 HG (Total) 0.01 0.01 0.01 Nitrite 0.6 0.6 0.4 Not Not Not Aflatoxin  $(B_1B_2G_1G_2)$ 0.005 detected detected detected \* PCB (Total) 0.01 Not Not Not detected detected detected \* BHC (Total) Not Not Not 0.05 detected detected detected \* Aldrin Not 0.01 Not Not detected detected detected \* Heptachlor Not Not Not 0.01 detected detected detected \* Dieldrin Not Not Not 0.01 detected detected detected \* DDT (Total) 0.05 Not Not Not detected detected detected Parathion Not Not 0.01 Not detected detected detected Malathion 1.04 0.75 0.39 Report

<u>Analysis F</u>	<u>Report</u>
	No.
TO:	(Page 3 of 3)
	3-6-10 Azusawa, Itabashi-ku, Tokyo 174
	Bioresearch Laboratory,
	Bioindustry Division
Specimen: September 1984 installment	Oriental Yeast Co., Ltd.
Requester:	TEL: 03 (968) 1111
Implementation Method: In-house Analysis Standards	

(piece/g)

		(piece/g)				
Specimen	Test Item	General Viable Count	Coli Group	Salmonella	Fungi	
MF	Lot 59-09-53	$3.9 \times 10^4$	0	0	0	
NMF	59-09-55	$2.7 \times 10^{5}$	0	0	0	
CRF-1	59-09-52	1.1 x 10 <sup>4</sup>	0	0	0	
RC4	59-09-63	$2.6 \times 10^4$	0	0	0	
GC4	59-09-75	$2.1 \times 10^4$	0	0	0	
DS	59-08-51	$5.0 \times 10^{1}$	0	0	5	
			Blank	below		
Report						

No. M57-200 (2) November 2, 1982

TO: Facility Section, Research Institute, Mitsubishi Chemical

Mitsubishi Kasei Institute of Toxicology and Environmental Sciences Director of Laboratory, Yoshiaki Suzuki

Following are the results of water quality test requested by your company on October 18, 1982.

Name of Structure: Facility Section, Research Institute, Mitsubishi Chemical

Location: 1000 Kamoshida-cho, Midori-ku, Yokohama

Sampling Location: Drinking water terminal hydrant

Date and Time of Sampling: October 18, 12:00 PM Raw Water Type: City water

Reason for Request: To test the quality after cleaning the drinking water tank

Residual Chlori	ne at the Time of Sampli	ng	Isolation – mg/	(Binding – n	ng/ ℓ)
Item	Quality Standards	Test Result	Item	Quality Standards	Test Result
1. Nitrate-nitrogen & nitrite-nitrogen	Less than 10 mg/ liter	1.02	15. Cadmium	Less than 0.01 mg/ liter	< 0.01
2. Chloride ion	Less than 200 mg/ liter	7.0	16. Arsenic	Less than 0.05 mg/ liter	< 0.05
3. Potassium permanganate consumption rate	Less than 10 mg/ liter	0.81	17. Fluorine 18. Hardness	Less than 0.8 mg/ liter Less than 300 mg/ liter	< 0.2 63
4. General bacteria	Less than 100 mg/ liter	0	19. Evaporation residue	Less than 500 mg/ liter	107
5. Coli group	Not to be detected	Negative	20. Phenols	Less than 0.005 mg/ liter	< 0.005
6. Cyanide ion	Not to be detected	< 0.001	21. Negative ion surfactant	Less than 0.5 mg/ liter	< 0.1
7. Mercury	Not to be detected	< 0.0005	22. pH	5.8-8.6	7.6 @ 20°C
8. Organic phosphorus	Not to be detected	< 0.1	23. Odor	Not to be abnormal	Normal
9. Copper	Less than 1.0 mg/ liter	< 0.04	24. Taste	Not to be abnormal	Normal
10. Steel	Less than 0.3 mg/ liter	< 0.05	25. Color	Less than Degree 2	Deg. 1
11. Manganese	Less than 0.3 mg/ liter	< 0.05	26. Turbidity	Less than Degree 1	< Deg. 1
12. Zinc	Less than 1.0 mg/ liter	< 0.02	27. Ammoniac nitrogen		
13. Lead	Less than 0.1 mg/ liter	0.07			
14. Hexavalent chromium	Less than 0.05 mg/ liter	< 0.05			
Decision	Based on above resul	t, the wat	er quality is comp	oliant to the standards o	f
	Waterworks Law				
Date of Receipt of	October 18, 1:00	PM	Test Period: Octo	ober 18 - 29	
Specimen	,				
ı	Mitsubishi Kasei	Institute of	of Toxicology and	l Environmental Science	es Ltd
Test Location			<b>0.</b>	ı, Yokohama, 227	
			ΓEL: (045) 962-12		

No. A83001 (2) May 4, 1983

TO: Toxicology Group, Mitsubishi Kasei Institute of Toxicology and Environmental Sciences, Ltd.

Mitsubishi

Kasei Institute of Toxicology and Environmental Sciences, <u>Ltd</u>.

Director of Laboratory, Yoshiaki Suzuki

[seal: Seal of Safety Institute]

[seal: Mitsubishi Kasei Institute of Toxicology and Environmental Sciences, Ltd]

Following are the results of water quality test requested by your company on April 12, 1983.

Name of Structure: Animal Wing, Safety Institute

Location: 1000 Kamoshida-cho, Midori-ku, Yokohama

Sampling Location: Drinking water terminal hydrant 002

Date and Time of Sampling: April 12, 12:00 PM Raw Water Type: Drinking water

Reason for Request: Periodic inspection

Residual Chlori	ne at the Time of Sampli	ng	Isolation 0.3 mg	/ ℓ (Binding 0.1	mg/ ℓ)
Item	Quality Standards	Test	Item	Quality Standards	Test
		Result			Result
1. Nitrate-nitrogen & nitrite-nitrogen	Less than 10 mg/ liter	0.68	15. Cadmium	Less than 0.01 mg/ liter	< 0.005
2. Chloride ion	Less than 200 mg/ liter	7.0	16. Arsenic	Less than 0.05 mg/ liter	< 0.01
3. Potassium	Less than 10 mg/ liter	1.2	17. Fluorine	Less than 0.8 mg/liter	< 0.06
permanganate consumption rate			18. Hardness	Less than 300 mg/ liter	53.7
4. General bacteria	Less than 100 mg/ liter	4	19. Evaporation residue	Less than 500 mg/ liter	114
5. Coli group	Not to be detected	Negative	20. Phenols	Less than 0.005 mg/ liter	< 0.005
6. Cyanide ion	Not to be detected	< 0.01	21. Negative ion surfactant	Less than 0.5 mg/ liter	< 0.1
7. Mercury	Not to be detected	< 0.0005	22. pH	5.8-8.6	7.8 @ 22°C
8. Organic phosphorus	Not to be detected	< 0.1	23. Odor	Not to be abnormal	Normal
9. Copper	Less than 1.0 mg/ liter	< 0.01	24. Taste	Not to be abnormal	Normal
10. Steel	Less than 0.3 mg/ liter	0.02	25. Color	Less than Degree 2	< Deg. 1
11. Manganese	Less than 0.3 mg/ liter	< 0.01	26. Turbidity	Less than Degree 1	< Deg. 1
12. Zinc	Less than 1.0 mg/ liter	0.03	27. Ammoniac nitrogen		< 0.03
13. Lead	Less than 0.1 mg/ liter	< 0.01	muogen		
14. Hexavalent	Less than 0.05 mg/ liter	< 0.05			
chromium					
Decision	Based on above resul	t, the wate	er quality is com	pliant to the standards	of
	Waterworks Law			_	
Date of Receipt of	April 12, 1:00 P	M	Test Period: Apr	ril 12 - 26	
Specimen	,				
	Mitsubishi Kasei	Institute o	of Toxicology and	d Environmental Scien	ices, Ltd
Test Location				u, Yokohama, 227	<u></u>
			TEL: (045) 962-1	,	

No. A84003 ([illegible]) March 12, 1984

TO: Toxicology Group, Mitsubishi Kasei Institute of Toxicology and Environmental Sciences, Ltd

Mitsubishi Kasei Institute of Toxicology and Environmental Sciences, <u>Ltd</u> Director of Laboratory, Yoshiaki Suzuki

[seal: Seal of Safety Institute]

[seal: Mitsubishi Kasei Institute of Toxicology and Environmental Sciences, Ltd]

Following are the results of water quality test requested by your company on February 20, 1984.

Name of Structure: Animal Wing Location: 1000 Kamoshida-cho, Midori-ku, Yokohama

Sampling Location: B-201

Date and Time of Sampling: February 20, 10:00 AM Raw Water Type: City water

Reason for Request: Periodic inspection

Residual Chlorin	ne at the Time of Sampli	ng	Isolation 0.2 mg/ $\ell$ (Binding 0.2 mg/ $\ell$ )		
Item	Quality Standards	Test Result	Item	Quality Standards	Test Result
1. Nitrate-nitrogen & nitrite-nitrogen	Less than 10 mg/ liter	1.04	15. Cadmium	Less than 0.01 mg/ liter	< 0.001
2. Chloride ion	Less than 200 mg/ liter	9.1	16. Arsenic	Less than 0.05 mg/ liter	< 0.005
3. Potassium	Less than 10 mg/ liter	1.38	17. Fluorine	Less than 0.8 mg/liter	< 0.2
permanganate consumption rate	Ç		18. Hardness	Less than 300 mg/ liter	60.9
4. General bacteria	Less than 100 mg/ liter	0	19. Evaporation residue	Less than 500 mg/ liter	133
5. Coli group	Not to be detected	Negative	20. Phenols	Less than 0.005 mg/ liter	< 0.005
6. Cyanide ion	Not to be detected	< 0.01	21. Negative ion surfactant	Less than 0.5 mg/ liter	< 0.1
7. Mercury	Not to be detected	< 0.0005	22. pH	5.8-8.6	7.3 @ 20°C
8. Organic phosphorus	Not to be detected	< 0.03	23. Odor	Not to be abnormal	Normal
9. Copper	Less than 1.0 mg/liter	0.01	24. Taste	Not to be abnormal	Normal
10. Steel	Less than 0.3 mg/ liter	0.03	25. Color	Less than Degree 2	< Deg. 1
11. Manganese	Less than 0.3 mg/ liter	< 0.01	26. Turbidity	Less than Degree 1	< Deg. 1
12. Zinc	Less than 1.0 mg/ liter	0.02	27. Ammoniac nitrogen		< 0.03
13. Lead	Less than 0.1 mg/liter	< 0.01			
14. Hexavalent chromium	Less than 0.05 mg/ liter	< 0.05			
Decision	Based on above resul	t. the wate	er quality is com	pliant to the standards	of
20151011	Waterworks Law	,	or quarry is com-	P14414 VO V144 SVALIGUE GS	01
Date of Receipt of	February 20, 1:00	PM	Test Period: Feb	oruary 20 – March 8	
Specimen	-				
•	Mitsubishi Kasei	Institute c	of Toxicology and	d Environmental Scien	ices, Ltd
Test Location				u, Yokohama, 227	<u> </u>
			ΓEL: (045) 962-1		

No. A84006 (3) July 4, 1984

TO: Toxicology Group, Mitsubishi Kasei Institute of Toxicology and Environmental Sciences, Ltd.

Mitsubishi Kasei Institute of Toxicology and Environmental Sciences, <u>Ltd</u> Director of Laboratory, Yoshiaki Suzuki [seal: Seal of Safety Institute]

[seal: Mitsubishi Kasei Institute of Toxicology and Environmental Sciences, Ltd]

Following are the results of water quality test requested by your company on June 18, 1984.

Name of Structure: Animal Wing Location: 1000 Kamoshida-cho, Midori-ku, Yokohama

Sampling Location: 003 B-201

Date and Time of Sampling: June 18, 3:00 PM Raw Water Type: City water

Reason for Request: Periodic inspection

	ng	Isolation 0.1 mg/	$\ell$ (Binding 0.2)	mg/ℓ)
Quality Standards	Test	Item	Quality Standards	Test
•	Result			Result
Less than 10 mg/ liter	0.82	15. Cadmium	Less than 0.01 mg/ liter	
Less than 10 mg/ liter	1.6			
		18. Hardness	Less than 300 mg/ liter	63.8
Less than 100 mg/ liter	3	19. Evaporation residue	Less than 500 mg/ liter	133
Not to be detected	Negative	20. Phenols	Less than 0.005 mg/	
Not to be detected		21. Negative ion	Less than 0.5 mg/ liter	
Not to be detected		22. pH	5.8-8.6	7.5 @ 25 °C
Not to be detected		23. Odor	Not to be abnormal	Normal
ass than 1.0 mg/liter	0.01	24 Teste	Not to be abnormal	Normal
			- , - , - , - , - , - ,	< Deg. 1
				< Deg. 1
			Less than Degree 1	< Dcg. 1
Less than 1.0 mg/ mer	0.01			
ess than 0.1 mg/liter				
Less than 0.05 mg/ liter				
Based on above result	t, the wate	er quality is comp	liant to the standards o	f
Waterworks Law		1 2 1		
June 18, 3:00 Pl	M	Test Period: June	18 - 29	
Mitsubishi Kasei l	Institute o	f Toxicology and	Environmental Science	es, Ltd
				<del></del>
	Less than 10 mg/liter Less than 200 mg/liter Less than 10 mg/liter Less than 100 mg/liter Less than 100 mg/liter Less than 100 mg/liter Less than 100 mg/liter Less than 1.0 mg/liter Less than 0.3 mg/liter Less than 0.3 mg/liter Less than 1.0 mg/liter Less than 0.1 mg/liter Less than 0.05 mg/liter Less than 0.05 mg/liter Less than 0.1 mg/liter	Result  dess than 10 mg/liter dess than 200 mg/liter dess than 200 mg/liter dess than 10 mg/liter dess than 100 mg/liter dot to be detected dot to be detected dot to be detected dot to be detected dess than 1.0 mg/liter dess than 0.3 mg/liter dess than 0.3 mg/liter dess than 0.3 mg/liter dess than 0.1 mg/liter dess than 0.05 mg/liter	Result    Result	Result  Dess than 10 mg/ liter  Dess than 200 mg/ liter  Dess than 200 mg/ liter  Dess than 10 mg/ liter  Dess than 10 mg/ liter  Dess than 100 mg

#### 1. How to Enter the Room

When entering the animal room within BS, make sure to pay sufficient attention to hygiene control and adhere to the following rules as the room is used to keep SPF animals for a long period of time.

- 1) If suffering from respiratory infection, do not enter the room.
- 2) Ones worked at an animal room other than SPF animal room are prohibited to enter the room to prevent infection.
- 3) If suffering from an injury that requires a bandage, refrain from entering the room, as a general rule. If entry cannot be avoided, seek for supervisor's instruction.
- 4) If wearing a band-aid, etc., remove it at the dressing room in the contaminated side and retreat the wound at the dressing room in the clean side.
- 5) Do not forget to turn off/ on the sterilizing lamp when entering/ exiting each room. Make sure not to look at the sterilizing lamp directly with naked eyes.
- 6) When exiting the room, make sure that the door is closed.

#### 2. How to Enter the BS

Change the entry sign to "Occupied."

Prior to entering the dressing room in the contaminated side, take off the shoes and put them on the rack.

(1)	Dr	essing room in the contaminated side (divided by gender)
		Turn off the sterilizing lamp and turn on the fluorescent light.
		Remove clothing except for minimum required underwear and eye glasses, and put
		them on the shelf.
		If wearing a long hair and the hair may come out of the hat, secure it with pin, etc.
		The shower room can only hold up to three people at a time. Remember this when
		entering the shower room.

#### (2) Shower room (divided by gender)

□ Carefully wash the arms and legs (elbow to finger tips and knees to toes) using a brush with a medicated soap (wash between fingers and nails as well), and rinse with water. In principle, wash the face as well.

	Using sterilized paper towels, wipe off water from extremities (i.e., hands and
	fingers/ toes) towards the body. Wipe the section closest to the contaminated section
	last.
	Prepare a chemical bath in the sink (200 x Hibitane solution), and sprinkle the
	chemical solution to faucet, shower handle, tip of toes and the floor.
	Rinse the eye glasses with water and wipe with sterilized paper towel.
	Using Hibitane and alcohol immersed cotton, wipe hands and fingers as well as the
	door knob on the shower room door in the clean side.
	Make sure no one is in the dressing room in the clean side and proceed to the room.
	Pay attention not to simultaneously open the door to the hallway and the door to the
	shower room in the clean side dressing room.
(3) Dr	ressing room in the clean side (divided by gender)
	Wear sterilized clothing here.
	Turn off sterilizing lamp and turn on fluorescent lamp.
	Carefully wipe off water on feet using paper towels.
	Put on the hat and then the mask. (Conversation is strictly prohibited until the mask
	is put on)
	Wear suit, socks, athletic shoes and rubber gloves.
	Go out to the hallway. Make sure to close the door. Turn off the fluorescent lamp
	and turn on the sterilizing lamp.
w to Eı	nter and Exit from the Animal Room
(1) En	try procedure

#### 3. Ho

As a general rule, enter the cage storage, food storage, and then animal room, and avoid as much as possible to enter other clean areas (cleaning workroom, cage storage, food storage) as much as possible after leaving any animal room.

#### 4. How to Leave the BS

- (1) The hallway  $\rightarrow$  bathroom  $\rightarrow$  dressing room in the contaminated side  $\rightarrow$  outside of barrier
- (2) Take all the clothes off and put them in the box by the entry.
- (3) Return the entry sign to original display.
- (4) The last person to leave must make sure no one else is left, and then turn off the fluorescent lamp for the BS hallway.

# **Support Document 7: Results of Antibody Test on Pathogenic Microorganisms**

Results of Infection Tests on Mice and Rats (Serological Reaction) Test No. 1: Blood sampling on February 2, 1983 (5 months into the study)

Exp. No. 83-0216 Mitsubishi-Kasei Source (Abe)

E: Ectromelia(Vaccinia)-CF J: MHY-JHM(MHY-4)-CF

M: MHY-2-CF

Bp: Bacillus piliformis(Tyzzer)-CF St: Salmonella typhimurium-AG Ck: Corynebacterium kutscheri-AG

S: Sendai-CF

Bb: Bordetella bronchiseptica-CF Mp : Mycoplasma pulmonis-CF

Positivity at 1:5

Group	Number of test sera	4000			Numbe	er (%) of	sera po	sitive for	:			
	cest seta	E	J	М	S	Bb	Мр	Bp (H)	Bp (M)	Bp(R)	St	Ck
Rat :1-16*	16										(88)	1000.0
Rat :27-29	3				400			0				77
Mouse:17-26	10			100				.0				
(B6C3F1)												
Total	29											

Date of	Specimen	Date of	Experiment	ID Code	Animal	Gender	Age	Living	Room	Tester
Request	No.	Blood	No	•	Type/			Condition	No.	
_		Sampling			Strain					
2/14/1983	1	11/01/82	Kukiko	No. 1	Wister	Male		$S \rightarrow C$	E Wing	Takeda
Dispatch	2	11/01/82	Kukiko	No. 2	Wister	Male		$S \rightarrow C$	E Wing	Takeda
	3	11/01/82	Kukiko	No. 3	Wister	Male		$S \rightarrow C$	E Wing	Takeda
	4	11/01/82	Kukiko	No. 1	Wister	Female		$S \rightarrow C$	E Wing	Takeda
	5	11/01/82	Kukiko	No. 2	Wister	Female		$S \rightarrow C$	E Wing	Takeda
	6	11/01/82	Kukiko	No. 3	Wister	Female		$S \rightarrow C$	E Wing	Takeda
	7	2/2/83	ME(R)	<i>A-</i> ♂- <i>72</i>	Fischer	Male		SPF	B201	Matsuura
	8	2/2/83	ME(R)	<i>B</i> -♂-72	Fischer	Male		SPF	B201	Matsuura
	9	2/2/83	ME(R)	<i>C</i> -♂-72	Fischer	Male		SPF	B201	Matsuura
	10	2/2/83	ME(R)	<i>D</i> -♂-72	Fischer	Male		SPF	B201	Matsuura
	11	2/2/83	ME(R)	<i>E-</i> ♂-24	Fischer	Male		SPF	B201	Matsuura
	12	2/2/83	ME(R)	<i>A-</i> ♀- <i>71</i>	Fischer	Female		SPF	B201	Matsuura
	13	2/2/83	ME(R)	<i>B</i> -♀-72	Fischer	Female		SPF	B201	Matsuura
	14	2/2/83	ME(R)	<i>C</i> -♀-72	Fischer	Female		SPF	B201	Matsuura
	15	2/2/83	ME(R)	<i>D</i> -♀-72	Fischer	Female		SPF	B201	Matsuura
	16	2/2/83	ME(R)	<i>E</i> -♀-24	Fischer	Female		SPF	B201	Matsuura

Governmental	ME
Commission	
Methanol	58

Results of Infection Tests on Mice and Rats (Serological Reaction) Animal Care Facility: Mitsubishi Kasei Institute of Toxicology and Environmental Sciences, Ltd Test Date: July 13, 1983 Test No. D-89

[seal: Takeda, 7/18/1983, (Kazu)]

Animal Microorganism	F344 42W									(1424)]
Meroorganism	A72, M	A 72, F	B72, M	B72, F	C72, M	C72, F	D72, M	D72, F	E23, M	E24, F
Corynebacterium kutscheri	_*	_	_	_	_	_	_	_	_	_
Salmonella typhimurium	_	_	_	_	_	_	_	_	_	_
Tyzzer's organism	_	_	_	_	_	_	_	_	_	_
Myeoplasma pulmonis	_	_	_	_	_	_	_	_	_	_
Ectromelia virus										
Mouse adenovirus	_	_	_	_	_	_	_	_	_	_
Mouse hepatitis virus	_	_	_	_	_	_	_	_	_	_
Sendai virus	_	_	_	_	_	_	_	_	_	_
	* Anti	body titer	< 1:10 (neg	gative)						

Test No. 2: Blood sampling on June 23, 1983 (9 months into the study)

[seal: Seal of ICLAS Monitoring Center, Central Institute for Experimental Animals]

# ICLAS Monitoring Center, Central Institute for Experimental Animals

1430 Nogawa, <del>Takatsu</del> Miyamae-ku, Kawasaki-shi, 213, TEL (044) 751-2084 (direct)

Mgr	Tester
[seal: Kagiyama]	[seal: Ito]

Governmental	ME
Commission	
Methanol	58

[seal: Takeda, 10/31/1983, (Kazu)]

# Results of Infection Tests on Mice and Rats (Serological Reaction)

Animal Care Facility: Mitsubishi Kasei Institute of Toxicology and

Environmental Sciences, Ltd Test Date: Oct. 26, 1983 Test No. D-210

Animal	F344					FOW E				
Microorganism	50W, M A-72	B-72	C-72	D-71	E-24	50W, F A-72	B-72	C-72	D-71	E-24
Corynebacterium kutscheri	_ *	_	_	-	_	-	_	-	_	_
Salmonella typhimurium	_	-	_	_	_	_	_	_	_	_
Tyzzer's organism	_	_	_	_	_	_	_	_	_	_
Myeoplasma pulmonis	_	_	_	_	_	_	_	_	_	_
Ectromelia virus										
Mouse adenovirus	_	_	_	_	_	_	_	_	_	_
Mouse hepatitis virus	_	-	_	_	_	-	_	_	_	_
Sendai virus	_	-	_	_	_	_	_	_	_	_
	* Anti	body titer	< 1:10 (ne	gative)						

Test No. 3: Blood sampling on September 5, 1983 (12 months into the study)

[seal: Seal of ICLAS Monitoring Center, Central Institute for Experimental Animals]

# ICLAS Monitoring Center, Central Institute for Experimental Animals

1430 Nogawa, <del>Takatsu</del> Miyamae-ku, Kawasaki-shi, 213, TEL (044) 751-2084 (direct)

Mgr	Tester
[seal: Kagiyama]	[seal: Ito]

Governmental	ME
Commission	
Methanol	58

[seal: Takeda, 2/[illegible]/1984, (Kazu)]

Request No.

# Results of Infection Tests on Mice and Rats (Serological Reaction) Animal Care Facility: Mitsubishi Kasei Institute of Toxicology and Environmental Sciences, Ltd Test Date: Jan. 25, 1984 Test No. D-313

Animal	F344									
Microorganism	70W, M					70W, F				
	A-51	B-52	C-52	D-52	E-14	A-52	B-52	C-52	D-52	E-15
Corynebacterium kutscheri	_ *	_	_	_	_	_	_	_	_	_
Salmonella typhimurium	-	_	_	-	_	-	_	-	_	_
Tyzzer's organism	_	_	_	_	_	_	_	_	_	_
Myeoplasma pulmonis	_	_	_	_	_	_	_	_	_	_
Ectromelia virus										
Mouse adenovirus	-	_	_	_	_	_	_	_	_	_
Mouse hepatitis virus	-	_	-	-	-	-	-	-	_	_
Sendai virus	_	_	_	_	_	_	_	_	_	_
	* Anti	body titer	< 1:10 (ne	gative)						

Test No. 4: Blood sampling on January 19, 1984 (16 months into the study)

[seal: Seal of ICLAS Monitoring Center, Central Institute for Experimental Animals]

ICLAS Monitoring Center, Central Institute for Experimental Animals

1430 Nogawa, Miyamae-ku, Kawasaki-shi, 213, TEL (044) 751-2084 (direct)

Mgr	Tester
[seal: Kagiyama]	[seal: Ito]

Governmental	ME
Commission	
Methanol	59

Request No.

Results of Infection Tests on Mice and Rats (Serological Reaction) Animal Care Facility: Mitsubishi Kasei Institute of Toxicology and Environmental Sciences, Ltd Test Date: May 23, 1984 Test No. D-495

Animal	F344									
Microorganism	87W, M					87W, F				
	A-51	B-52	C-52	D-52	E-13	A-52	B-52	C-52	D-52	E-15
Corynebacterium kutscheri	_ *	_	_	_	_	_	_	_	_	_
Salmonella typhimurium	-	_	-	_	_	-	_	_	_	_
Tyzzer's organism	-	_	-	_	-	-	_	-	_	_
Myeoplasma pulmonis	-	_	-	_	_	_	_	_	_	_
Ectromelia virus										
Mouse adenovirus	_	_	_	_	_	_	_	_	_	_
Mouse hepatitis virus	_	_	-	_	_	-	_	-	_	_
Sendai virus	_	_	_	_	_	_	_	_	_	_
	* Antibody titer < 1:10 (negative)									

Test No. 5: Blood sampling on May 17, 1984 (20 months into the study)

[seal: Seal of ICLAS Monitoring Center, Central Institute for Experimental Animals]

# ICLAS Monitoring Center, Central Institute for Experimental Animals

1430 Nogawa, Miyamae-ku, Kawasaki-shi, 213, TEL (044) 751-2084 (direct)

Mgr	Tester
[seal: Kagiyama]	[seal: Ito]

Request No.

# Results of Infection Tests on Mice and Rats (Serological Reaction) Animal Care Facility: Mitsubishi Kasei Institute of Toxicology and Environmental Sciences, Ltd

Test Date: Dec. 19, 1984 Test No. D-794

Animal Migracupanian	F344					104W E				
Microorganism	104W, M A-1	B-2	C-2	D-1	E-2	104W, F A-1	B-1	C-1	D-1	E-1
Corynebacterium kutscheri	_	_	_	_	_	_	_	_	_	_
Salmonella typhimurium	_	-	-	-	-	_	-	-	_	-
Tyzzer's organism	_	_	_	_	_	_	_	_	_	_
Myeoplasma pulmonis	_	_	_	_	_	_	_	_	_	_
Ectromelia virus										
Mouse adenovirus	_	-	_	-	_	-	-	_	_	_
Mouse hepatitis virus	_	-	_	_	_	_	-	_	_	_
Sendai virus	_	_	-	-	_	-	_	_	_	_

Note) Antibody titer of more than 10X is positive.

[seal: Seal of ICLAS Monitoring Center, Central Institute for Experimental Animals]

# ICLAS Monitoring Center, Central Institute for Experimental Animals

1430 Nogawa, Miyamae-ku, Kawasaki-shi, 213, TEL (044) 751-2084 (direct)

Mgr	Tester
[seal: Kagiyama]	[seal: Ito]

Test No. 6: Blood sampling on September 18 (male) and September 25 (female), 1984 (24 months into the study)